OTIC FILE WEY AD-A192 049 Research Product 87-33 Combat Leaders' Guide: Platoon Leaders, Platoon Sergeants, and Squad Leaders ARI Field Unit at Fort Benning, Georgia **Training Research Laboratory** November 1987 ELECTE MAR 0 1 1988 H_{C^p}

U. S. Army Research Institute for the Behavioral and Social Sciences

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18. SUPPLEMENTARY NOTES

Dr. Seward Smith was Contracting Officer's Representative. This project was monitored technically by Margaret S. Salter, ARI Field Unit, Fort Benning, GA.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Job aids	Infantry	Attack	
Job performance aids	Mechanized infantry	Defend	•
Combat job aids	Basic combat rules	Delay	
Continuous operations	Plan	Withdraw	
Memory jogger	Move	Patrol	(Continued)

20. ABSTRACT (Continue on reverse side if recessary and identify by block number)

A Since the modern combat leader is faced with making many complex decisions under conditions of great stress and fatigue, it is vital that he be provided with standardized job aids to assist him in accomplishing his combat mission. Until the present report, no effective, standardized job aids have been available to the combat leader.

The Combat Leaders' Guide (CLG) project was initiated to produce a modular job performance aid system for combat leaders' use during periods of (Continued)

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ARI Research Product 87-33

19. Kev Words (Continued)

Recon Medical

Combat in cities Air defense
Target acquisition Vehicle recovery

Mines Weapons

Demo Commo NBC Law of war

Land navigation POW

20. Abstract (Continued)

high stress in continuous combat. The CLG is designed to (1) be fully usable under combat conditions; (2) have a standardized format; (3) be a modular, highly flexible system; (4) provide fast information retrieval; (5) be easily personalized to individual need, job assignment, mission requirements, equipment availability, and area of operations by adding or removing modules; (6) be easily supplemented by higher command; (7) be fully usable under adverse weather and low light conditions; and (3) utilize as many government standard components as possible.

Supplies

Logistics

Fire support

Conversion tables

Air assault operations

The CLG was designed to be produced in modular format on waterproof and tear-resistant paper. It is fastened with post screws to allow easy addition or deletion of materiel. The present research product represents camera-ready copies of the front and back side of each page.

The prototype CLG and an accompanying feedback form were distributed to active Army noncommissioned officers and officers in units and schools, and for desktop review to a number of former service members. Over 40% of respondents returned their feedback forms, with responses overwhelmingly in favor of the CLG's overall effectiveness and utility. Based upon the feedback received, changes were made to the prototype CLG.

The changes and the techniques used in the development of both the prototype CLG and the present research product are documented in the research report accompanying the prototype CLG, Field Evaluation of a Job Aid System for Combat Leaders: Rifle Platoon and Squad, and in the authoring guide, Authoring Guide: A Job Aid to Design and Produce a Combat Leaders' Guide, which is a job aid for the developers of similar job performance aids.

The Combat Leaders' Guide: Platoon Leaders, Platoon Sergeants, and Squad Leaders represents a fully usable job aid for the modern combat leader. It is easily adaptable to any career military field or branch or service and is equally usable by the Active Army, Army Reserve, and the Army National Guard.

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EDGAR M. JOHNSON Technical Director

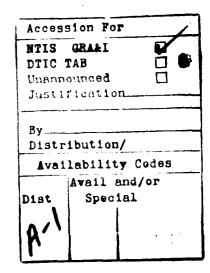
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Litton Computer Services, Litton Systems, Inc.

Technical review by

Thomas J. Thompson Patrick J. Valentine



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NOTE: This Research Product is not to be construed as an official Department of the Army document in its present form.

Research Product 87-33

Combat Leaders' Guide: Platoon Leaders, Platoon Sergeants, and Squad Leaders

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November 1987

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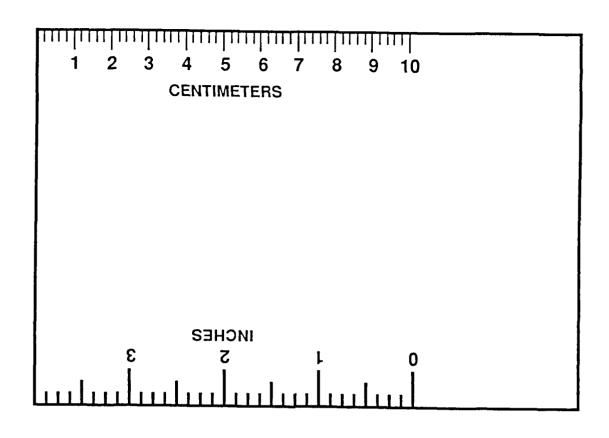
Education and Training

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Since the modern combat leader is faced with making many complex decisions under conditions of great stress and fatigue, it is important that he be provided with standardized job aids to assist him in accomplishing his combat mission. The purpose of this project was to improve on the existing prototype of the Combat Leaders' Guide: Rifle Platoon and Squad. The Combat Leaders' Guide: Platoon Leaders, Platoon Sergeants, and Squad Leaders was designed to be produced in modular format, on waterproof and tear-resistant paper. The present product contains 25 modules fastened together with post screws to allow easy addition or deletion of material. Each module and page is camera-ready.

This project was produced by Litton Computer Services under contract to the Army Research Institute's Fort Benning Field Unit. The research tasks that support this mission are 1.2.5, Infantry and Special Operations Combat Effectiveness Research, and 3.4.2, Advanced Methods and Systems of Combat Vehicle Training; the work was sponsored by Training and Doctrine Command (TRADOC) Training and Technology Agency, Fort Monroe, Virginia. Overwhelmingly favorable comments on the earlier version of this product were received from personnel in Force Command units, the U.S. Army Infantry School, and other elements of TRADOC.

EDGAR M. JOHNSON Technical Director



COMBAT LEADERS' GUIDE PERFORMANCE IN COMBAT IN COMBAT IN COMBAT IN COMBAT AND SQUAD LEADERS, AND SQUAD LEADERS

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COMBAT LEADERS' GUIDE TABLE OF CONTENTS	MODULE	Basic combat rules	Plan	Move	Attack	Defend	Delay	Withdraw	Patrol/recon	Combat in cities	Target acquisition	Mines/demo	NBC	Land navigation	Medical	Continuous operations	Air defense	Vehicle recovery	Weapons	Commo	0.2.1
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1.0.2	BASIC COMBAT RULES TABLE OF CONTENTS	ITEM	•
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INTRODUCTION

- The Combat Leaders' Guide (CLG) is a for and perform your COMBAT MISSION. set of job aids designed to help you train
 - when you are tired and under stress to you use while doing a task. Use them · Job aids are "memory joggers" that accurately complete complex tasks.

USING THE CLG:

- Use the job aids every time you do the tasks in training or in combat.
 - Write with a #2B soft lead pencil.
- Standardize the CLGs in your unit to improve your command, control, and communication.

PAGE NUMBERS IN THE CLG:

- The 1st number (Ex: 0) is the module.
- The 2nd number (Ex: 0.1) is the job aid.
- The 3rd number (Ex: 0.1.1) is the page in that job aid.

0.1.2

INTRODUCTION

MAINTAINING THE CLG:

- Add or remove pages or modules by unscrewing the post screws.
 - · Protect the CLG from the weather.
- Dry the pages if they get wet.
- Reinforce the page holes if they become worn or torn.

CUSTOMIZING THE CLG:

- Add or remove pages or modules based on your unit's mission.
- Save the pages that you remove for later use.
- content area or in the order you do them. Organize the modules or job aids by
 - Insert the plastic sleeves or tabs to quickly find key job aids or modules.
- that your unit issues in the plastic sleeves · Place other job aids that you make or for quick reference *a*nd use.

'	THE PRINCIPLES OF WAR
ITEM	PRINCIPLE
τ-	Objective
2	Offensive
3	Mass
4	Economy of force
5	Maneuver
9	Unity of command
7	Security
8	Surprise
6	Simplicity
Notes:	
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	{I	THE PROFESSION OF ARMS
	TH	THE PROFESSIONAL ARMY ETHIC
	ITEM	ЕТНІС
	1	Loyalty to the institution
	2	Loyalty to the unit
	3	Personal responsibility
	4	Selfless service
		PROFESSIONAL SOLDIERLY QUALITIES
	ITEM	QUALITY
	1	Commitment
	2	Competence
	3	Candor
	4	Courage

1	7]
LEADING IN COMBAT	ACTION	Set the example	Lead from as far forward as you can	Lead from a position where your men can see you	Lead from where you can control all elements physically or by radio	Move to critical locations to influence the action	Make sound, but quick decisions	Forcefully execute decisions	1.3.1
	ITEM	1	2	3	4	2	9	7	

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1.4.1	TACTICS FOR ALL ECHELONS	TACTIC	Find the enemy-avoid being surprised	Coordinate all firepower and electronics	Maneuver to gain the initiative	Protect the force	Plan to sustain operations	Keep lower, higher, and adjacent informed	Report-report	io	
:	TA	ITEM	1	2	င	4	ည	9	7	Notes:	
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BASIC RULES OF COMBAT	RULE	Secure	Use cover and concealment	Establish local security	Conduct the recon	Protect the unit	Move	Establish moving element	Get in best position to shoot	Gain and maintain initiative	Move fast	Strike hard	Finish quick	Shoot
	ITEM	-	4	18	10	5	7	2A	2B	20	2D	2E	2F	က

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1.5.2	BASIC RULES OF COMBAT	► BULE	Establish base of fire	Maintain mutual support	Kill enemy	Suppress enemy	Communicate	Keep everybody informed	Tell soldiers what you expect	Sustain	Keep fight going	Take care of soldiers	
	B	ITEM	3A	3B	3C	3D	4	4A	4B	5	5A	5B	Notes:
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PLAN TABLE OF CONTENTS	ITEM Troop leading procedures Warning order Factors of METT-T Military aspects of terrain Estimate of situation Analysis and comparison of courses of action Operation order Fragmentary order Time schedule Light data	
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2			
	S	PAGE	
2.0.2	PLAN TABLE OF CONTENTS	ITEM	
7			

TRO	TROOP LEADING PROCEDURES	RES
STEP	ACTION	>
-	Receive mission	
2	Issue warning order	
က	Make tentative plan	
4	Start needed movement	
5	Recon	
9	Complete plan	
7	Issue orders	
ھ	Supervise and refine	
Notes:		
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2.2.1	WARNING ORDER	1. Mission		2. Task organization		3. Time of operation	4. Special instructions						
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WARNING ORDER	5. Time to issue complete order	6. Place to issue complete order	7. Other								2.2.2
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2.3.1	FACTORS OF METT-T	FACTOR	Mission	Specified tasks	Implied tasks	Essential tasks	Restated mission	Constraints	Enemy	Туре	Location	Organization	Identification	Strength	Morale	
		ITEM	1	1A	18	10	1D	1E	2	2A	2B	2C	2D	2E	2F	
2																•

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FACTORS OF METT-T	FACTOR	Capabilities	Likely courses of action	Intentions	Terrain and weather	Observation	Fields of fire	Key terrain	Obstacles	Cover	Concealment	Avenues of approach	Trafficability	Visibility
	TEM	2G	2Н	2	က	3A	38	30	3D	3F	3G	3H	3	સ

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2.3.3	FACTORS OF METT-T	FACTOR	Weather forecast	Effect on soldiers	Effect on equipment	Troops available	Number and type	Task organization	State of training	State of discipline	Strength-personnel	Strength-materiel	Morale	Past performance	Location and disposition
		ITEM	34	31	3M	4	4A	4B	4C	4D	4E	4F	4G	4H	41
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ļ	FACTORS OF METT-T	
ITEM	FACTOR	>
4.1	State of maint and supply	
4K	Cbt service support available	
4	Effect of leadership	
5	Time	
5A	Planning and preparation	
5B	Delay	
5C	Line of departure	
5D	Movement	
5E	Start, critical, release points	
5F	Hold or seize key terrain	
56	Enemy reaction	
Notes:		

BOTH It of view.	
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MILITARY ASPECTS OF TERRAIN Key word: OCOKA Note: Analyze EACH item from BOTH your own AND the enemy's point of view. ITEM ASPECT Observation and fire Concealment and cover Obstacles A Key terrain Motes:	
MILLI Note: your o 1 1 1 2 2 2 5 5 5 Notes:	
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ON Jen?	b. State essential tasks and purpose.	tuation and courses of action What is the situation? (1) What is the effect of terrain and her?	
ESTIMATE OF SITUATION Mission a. What must be done and when?	and br	Situation and courses of action a. What is the situation? (1) What is the effect of terra	
OF SI	al tasks	Situation and courses of a. What is the situation? (1) What is the effect ather?	
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ESTIN Mission a. What r	tate e	2. Situation a. What i. (1) Wh weather?	

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2.5.2	ESTIMATE OF SITUATION	(2) What enemy forces are against us and where?	(3) What friendly forces are available?	(4) What conclusions can you draw about relative combat power?		
1		-	 -			

3. Analysis of courses of action a. Select enemy capability(ies) for war gaming.
c. What are feasible courses of action to accomplish the mission?

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2.5.4	ESTIMATE OF SITUATION	b. War game courses of action against enemy capability(ies).	(1) What are the critical events and times?		(2) What actions are required?		(3) What are major advantages and	disadvantages of each course of action?		
N										

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ESTIMATE OF SITUATION	4. Comparison of courses of action-what is the best course of action? 5. Decision a. Refine the best course of action into a clear decision-include who, what, when, where, how, and why?	2.5.5
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ESTIMATE OF SITUATION b. Announce the decision and concept of the operation.
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ANALYSIS AND COMPARISON OF COURSES OF ACTION	ITEM	Supports scheme of maneuver	Helps command and control	Concentrates combat power at critical points	Forces mutually support	Responds to maneuver element(s) and reserve	2.6.1
ANALYS	DOES	CAI CAZ CAS					
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	RISON	DOESN'T	CA1 CA2 CA3		_				
2.6.2	ANALYSIS AND COMPARISON OF COURSES OF ACTION	ITEM		Exploits enemy weakness	Takes weather into account	Uses best avenue of approach	Provides enough maneuver space	Provides fields of observation and fire	Provides cover & concealment
	ANALYS OF C	DOES	CA1 CA2 CA3						
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Requires normal combat support	
Uses all headquarters	
Does not require adjustment of unit positions	
Helps speed of execution	
Controls key terrain	
Considers obstacles	
	CA1 CA2 CA3
ITEM	DOES
OF COURSES OF ACTION	ANALY OF C
	ANALYSIS AND COMPARISON OF COURSES OF ACTION DOES Considers Considers Considers Controls key terrain Helps speed of execution Does not require adjustment of unit positions Uses all headquarters Requires normal combat support

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OPERATION ORDER	on:	rces:		orces:	Attachments and detachments:	
OPER/	lask organization:	1. Situation a. Enemy forces:		b. Friendly forces:	c. Attachmen	

OPERATION ORDER 2. Mission 3. Execution a. Commander's intent: b. Concept of the operation (1) Maneuver:

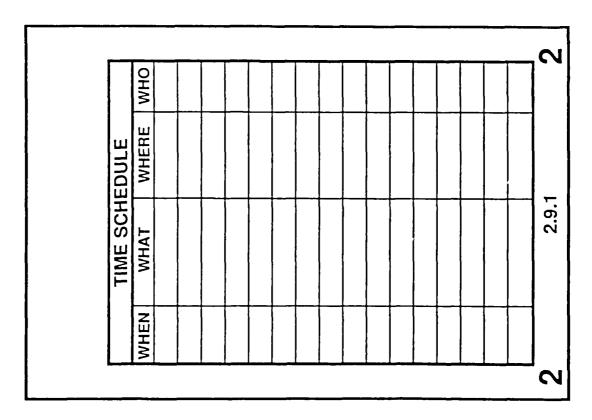
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1	d. Coordinating instructions:
	c. Subordinate unit subparagraphs:
1 1	(2) Fires:
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2.7.4	OPERATION ORDER	4. Service support:				5. Command and signal	a. Command:		- 4	b. Signal:			
7				 								 	

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2.8.2	FRAGMENTARY ORDER	Execution				Service support			Command			Signal				
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FRAGMENTARY ORDER Reference Task organization 1. Situation 2. Mission 2. Mission 2. 8.1
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		МНО												
	EDULE	WHERE												
2.9.2	TIME SCHEDULE	WHAT												
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		MOVE	TABLE OF CONTENTS	ITEM	Actions before march	Duties of quartering party	March orders	Actions during march	Actions at scheduled halts	Actions at unscheduled halts	Actions for disabled vehicle	halts	Actions at assembly area	Terrain driving	Traveling	Traveling overwatch	Bounding overwatch	Tasks of overwatch force	Actions on an overwatch	position	Movement considerations	100	3.0.1

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ACTIONS BEFORE MARCH	ACTION	Give warning order	Select quartering party NCO and send to team CP	Recon route from AA to SP	Record time from AA to SP	Adjust departing time from AA to arrive at SP on time	Have crews perform pre- combat checks	Have vehicle commanders report their status	Give march order to vehicle commanders
	STEP	1	2	က	4	5	9	7	8

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3.2.1	DUTIES OF QUARTERING PARTY	ACTION	Inspect intended assembly area for enemy NBC/mines	Secure platoon area until platoon arrives	Establish and maintain communications	Clear or mark obstacles	Select general location of each vehicle's hull-down concealed position and hide position	Mark each vehicle's place	Select covered/concealed route back to RP
	רטם	STEP	1	2	3	4	5	မ	7
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	:2	Notes:
	Brief platoon leader	10
	Guide platoon into area	6
	Meet platoon at RP	8
>	ACTION	STEP
	DUTIES OF QUARTERING PARTY	

		ACTIONS AT UNSCHEDULED HALTS	
	ITEM	ACTION	7=
	-	Establish security off road	
	2	Establish security on road	
	က	Maintain security-dismount personnel, if necessary	
	4	Report status	
	2	Take other appropriate actions(s)	
	9	Resume march when possible	,
	Nc [†] 9S:		
3		3.6.1]

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3.7.1	ACTIONS FOR DISABLED VEHICLE HALTS	ACTION	Do not allow vehicle to obstruct traffic	Move disabled vehicle off road	Have disabled vehicle report status immediately	Have crew establish security	Have crew post guides to direct traffic	If crew repairs vehicle, have it rejoin rear of column	If crew cannot repair vehicle, have maintence element pick it up	
		ITEM	1	2	က	4	5	9	7	
3			<u> </u>							. <u>.</u>

A	>						_				
ACTIONS AT ASSEMBLY AREA	ACTION	Follow guides into area	Clear RP fast-do not stop	Occupy preselected positions	Place out security	Maintain security	Check positions	Adjust positions as needed	Camouflage positions	Start maintenance	Start resupply
AC	ITEM	-	2	က	4	5	9	7	8	6	10

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	Α	>							
3.8.2	ACTIONS AT ASSEMBLY AREA	ACTION	Start rearming	Establish wire commo net	Coordinate with other units	Prepare reaction plan	Rehearse reaction plan	••	
	AC	ITEM	7	12	13	14	15	Notes:	
က									

_~~	3.9.1	
		Notes:
	Always look for nearest cover for protection if fired upon	9
	Cross open areas quickly	5
	Do not move directly forward from a hull-down firing position	4
	Avoid skylining	က
	Use all available cover and concealment	2
	Use terrain driving when contact with enemy is possible or expected	-
	ACTION	ITEM
	TERRAIN DRIVING	

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3.10.1	TRAVELING	ACTION	Use traveling technique when speed is important and contact with enemy is unlikely	Platoon moves on column axis, staggered laterally with intervals of 50–100 meters between vehicles, terrain permitting	Platoon leader rides in lead vehicle to control movement	Platoon sergeant rides in third vehicle to observe platoon leader, trailing squads, and last vehicle	::	
		ITEM	+	2	ဗ	4	Notes:	
က								

1 ⁻ F	TRAVELING OVERWATCH
T F	ACTION
	enemy contact is possible
2	Distance between lead vehicle and platoon leader is 100-400 meters
င	Distance between other vehicles is 50–100 meters, but may vary with terrain
4	Movement is continuous with maximum use of cover and concealment
ري ک	Movement keyed on lead squad to maintain proper distance and intervals
Notes:	
	3.11.1

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3.12.1	BOUNDING OVERWATCH	ACTION	Use bounding overwatch when you expect enemy contact	Cover movement of bounding squad from covered and concealed overwatch position	If bounding squad makes contact, overwatch supports by fire and maneuvers	Bounding squad moves to secure new positions while covered by overwatch	Is new position open? If YES, go to STEP 6. If NO, go to STEP 7.	
		ITEM	-	2		4	5	
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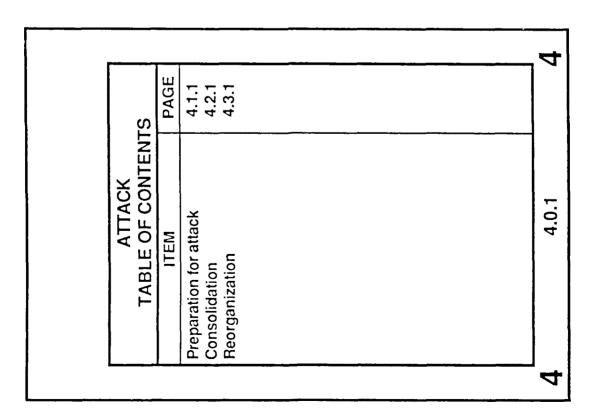
3WATCH	-	ays mounted n a sector	smounts to to provide	uad secures vatch can move	or each bound		c
BOUNDING OVERWATCH	ACTION	Bounding squad stays mounted with each man given a sector to observe	Bounding squad dismounts to man weapons and to provide security	When bounding squad secures new position, overwatch can move forward	Repeat steps 2–8 for each bound until completed		3.12.2
	ITEM	9	2	8	6	Notes:	
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ACTIONS ON AN OVERWATCH POSITION	ACTION	Visually check security of position	Occupy hull-down, concealed firing position	Platoon/squad leaders assign areas for observation/fire	Search for targets	Be alert for enemy activity	Don't concentrate on moves of bounding element	React immediately to any threat
	ITEM	-	2	က	4	5	6	7

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3.15.1	MOVEMENT CONSIDERATIONS	BEFORE BOUNDING TO YOUR NEXT POSITION, YOU MUST CONSIDER:	M QUESTION	Where is my next psn?	Where will I take up my psn on the next bound?	Where is my alternate psn?	If my psn is unsuitable when I arrive, where will I go next?	What is my best route?	What is my exact route from here to my next psn?	How will I use low ground?
	Δ	BEI	ITEM	1	1A	18	10	2	2A	2B
n										

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MOVEMENT CONSIDERATIONS ITEM QUESTION	2C How will I take advantage of hedges, trees, and shrubs?	2D What is my alternate route from here to my next position?	3 Where is the enemy?	3A If I were the enemy, where would I hide to observe, fire, and escape?	3B What likely enemy position(s) should I give special attention to during my move?	3C What is the enemy's most likely withdrawal route?	3.15.2
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4				•
	S	PAGE		
4.0.2	ATTACK TABLE OF CONTENTS	ITEM		
4				
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4	4.1.1	
	Check NBC situation	10
	Check attachments	တ
	Conduct vehicle PMCS	&
	Rearm	7
	Refuel	9
	Resupply	2
	Check key equipment	4
	Check weapons	3
	Move to assembly area	2
	Issue order	-
>	ACTION	TASK
¥	PREPARATION FOR ALLACK	Ь

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	 	>									
4.1.2	PREPARATION FOR ATTACK	ACTION	Confirm MOPP status	Inspect troops	Inspect vehicles	Feed troops	Rest troops	Recon routes to LD	Time routes to LD	Move to LD	
	Ь	TASK	11	12	13	14	15	16	17	18	Notes:
4											

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CONSOLIDATION	ACTION	Eliminate all remaining enemy resistance to our objective	Report status to next higher	Prepare to continue attack	Prepare for en counterattack	Coordinate with flank elem(s)	Set up perimeter defense	Position BFV/tanks/ITV to cover armor AA(s)	Prepare range cards	Begin planning to continue attack (map recon, orders)	4.2.1
	STEP	-	2	ဗ	4	2	9	7	8	6	
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		>													
4.3.1	REORGANIZATION	ACTION	Report	Personnel losses	Ammo expended	Fuel status	Condition of vehicles	Equipment status	Enemy casualties	POW	Enemy vehicles	Enemy weapons	Redistribute	Ammo	Personnel
		STEP	1	1A	18	10	10	1E	1F	1G	1H	11	2	2A	2B
4															

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REORGANIZATION	ACTION	Vehicles	Equipment	Evacuate	Casualties	Pow	Damaged equipment	Restore	Communications	Chain of command	Perform maintenance checks	Vehicles	Weapons	Equipment
	STEP	2C	2D	3	3A	38	30	4	44	4B	5	5A	5B	2C

4.3.3 REORGANIZATION	ACTION	gency repairs		
	AC	Perform emergency repairs Vehicles	Weapons	Equipment
	STEP	6A	6B	29

DEFEND TABLE OF CONTENTS ITEM PAGE Defensive priority of work Defense planning notes Coordination with adjacent unit(s) Establish observation post Prepare squad defensive position Supervise building a fighting position Range card preparation Suctor sketch preparation Sector sketch preparation Sector sketch preparation Fighting from a battle position (BP) Fire distribution and control (BP) Fire dist
DEFEND TABLE OF CONTENT ITEM Defensive priority of work Defense planning notes Coordination with adjacent unit(s) Establish observation post Prepare squad defensive position Supervise building a fighting position Range card preparation Sector sketch preparation Occupation of a battle position (BP) Fighting from a battle position (BP) Fire distribution and control Defending during limited visibility Camouflage

5					···
	S	PAGE	5.14.1		
5.0.2	DEFEND TABLE OF CONTENTS	ITEM	Vehicle camouflage Physical security		
5					

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ENSIVE P	TASK	Establish local security	Position security force	Position primary weapons	Position vehicles	Site final protective fires	Site other priority targets	Take NBC protective steps	Clear fields of fire	Prepare range cards	Compute ranges	Emplace obstacles	Prepare fighting positions	Set up wire commo net
DEF	STEP	1	2	က	4	5	9	7	8	9	10	Ξ	12	13
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5.1.2	DEFENSIVE PRIORITY OF WORK	TASK	Select supply-evac routes	Prepare supply-evac routes	Prepare alternate positions	Prepare supl positions	Prepare counterattack plans	Rehearse counterattack plans	Prepare dummy positions	
	DEF	STEP	14	15	16	17	18	19	20	Notes:
5										

(0)				.
DEFENSE PLANNING NOTES Commander's concept	Platoon/squad mission	3. Position of platoon/squad in platoon/ company/team defense	Platoon/squad sector of fire/EA	5.2.1
	5	% %	4	ַ <u>י</u>

S.			 			 		 		 	7		
5.2.2	DEFENSE PLANNING NOTES	5. Fire support available		Titot of north proposed and proposed to	damaged vehicles		7. Evacuation procedures for friendly casualties		8. Place to take enemy POW				
5												_	
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DEFENSE PLANNING NOTES 12. Position and mission of units in the rear rear
2

5.2.3	5
sition and mission of units on	11. Po
l-order mission for platoon/squad	10. Or
DEFENSE PLANNING NOTES	
<u></u>	cial signals to useorder mission for platoon/squad sition and mission of units on

		-							_r
COORDINATION WITH ADJACENT UNIT(S)	1. Location of primary psn	2. Location of alternate psn	3. Location of supplementary psn	4. 25mm sector of fire	5. TOW sector of fire	6. Dragon sector of fire	7. Coax sector of fire	8. Machine gun sector of fire	5.3.1
									51_

COORDINATION WITH ADJACENT UNIT(S) 4. Patrols a. Size b. Type c. Time of departure d. Time of return d. Time of return g. Emergency signals						
	COORDINATION WITH ADJACENT UNIT(S) 14. Patrols	a. Size b. Type	c. Time of departure d. Time of return	e. Location of passage point	l l	

S		,							1
5.3.4	COORDINATION WITH ADJACENT UNITS(S)	14. Patrols (cont) h. Fire support planned	i. FCL/NFL	j. Call signs	k. Frequencies	I. Challenge m. Password 15. Psn of contact/coordination points		Notes:	
(Z)			·						

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ESTABLISH OBSERVATION POST
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5.4.2	ESTABLISH OBSERVATION POST	ACTION	Carefully camouflage and position wire and radio antennas	Movement must not reveal location to enemy	Operate OP in reliefs of 2 men each unless movement will reveal location	Switch relief duties every 30 minutes	Limited visibility may preclude movement of day OP to another position		
	EST/	ITEM	2	9	7	ω	6	Notes:	
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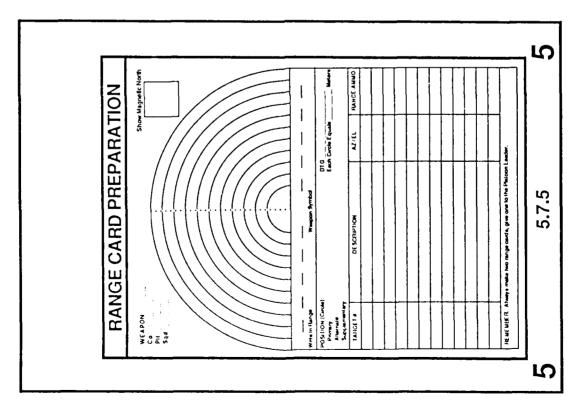
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PREPARE SQUAD DEFENSIVE POSITION	ACTION	Set priority for work	Assign work to all soldiers	Maintain security	ОР	Patrols	STANO devices	Work as fast as you can	Use cover & concealment	Construct fighting positions	Inspect and correct faults	5.5.1
	ITEM	1	2	က	3A	3B	3C	4	5	9	7	
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5.6.1	SUPERVISE BUILDING A FIGHTING POSITION	ACTION	Assign psn, loc, & sector of fire	Check sector of fire stakes	Check observation and fields of fire from firing position	Check depth of hole	Check grenade sumps	Check overhead cover	Check camouflage at position	Check camouflage from 50 m forward of position	Order soldier to correct faults
		ITEM	1	2	3	4	2	9	7	8	6
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RANGE CARD PREPARATION		ACTION	Draw symbol for weapon/ position in lower center	Place azimuth (degrees) and distance (meters) from a terrain feature to position (or 8-digit grid)	Draw sector(s) of fire left and right limit arrows	Label left and right sectors	Place range(s) to far limits of sector(s)
RA	prima any st	STEP	-	2	3	4	5

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	7	/						
5.7.2	RANGE CARD PREPARATION	ACTION	Place TRP where ordered and engagement areas where targets may appear	Number each TRP and EA	Place deflection and range from weapon/position to each TRP and EA	Draw maximum engagement line(s) across sector(s) of fire for each weapon and different type of ammo	Show dead space area(s)	Write "dead space" on each
	B/	STEP	9	^	8	6	10	7
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5.8.1	SECTOR SKETCH PREPARATION	Note: Make 1 card & 1 copy for each	primary, alternate, supplementary, and any static position if contact expected	ACTION	Draw your unit sector(s) or engagement areas	Draw main terrain features in sector(s) and range to each	Draw subunit positions	Draw subunit primary and sectors of fire	Draw weapon positions with primary sectors of fire for each	Draw maximum engagement ranges for each weapon/different type of ammo
	SEC	Note:	primar any sta	ITEM	-	2	က	4	5	9
5				•— 						

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	ON						
5.8.3	SECTOR SKETCH PREPARATION	TASK	Draw patrol routes	Draw location of your CP/OP	Draw locations, sector(s) of fire/EA of other weapons attached or operating in your sector	Place your unit ID, DTG prepared, and magnetic north arrow on sketch	
	SEC	ITEM	15	16	17	18	Notes:
5							

	>									3
OCCUPATION OF A BATTLE POSITION (BP)	ACTION	Move to turret-down psn on BP	Keep rest of plt in hide psn(s)	Recon psn	Designate gen loc of primary position(s) for plt	Move plt to primary position(s)	Designate primary sectors of fire/EA/TRP	Designate gen loc of supl positions	Designate supl sectors of fire/EA/TRP	5.9.1
	STEP	-	2	က	4	5	9	7	8	

S.												
		>										
5.9.2	OCCUPATION OF A BATTLE POSITION (BP)	ACTION	Coord with flank/adjacent units	Observation/fields of fire	Routes of withdrawal	ОР	Patrols	Flank position(s)	Wire communications	Report situation to co/tm Cdr	Check plt improving psn(s)	Plan routes to next BP
		STEP	6	9A	9B	26	G 6	9E	9F	10	11	12
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FIGHTING FROM A BATTLE POSITION (BP)	ACTION	Determine targets to engage	Determine methods of target engagement	Send contact and spot report	Issue platoon fire commands	Call for indirect fire, as needed	Send spot reports	Move to subsequent BP	Keep co/tm Cdr informed of situation and location	Organize to fight from BPs
	STEP	1	2	က	4	5	9	7	8	6

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5.11.1	FIRE DISTRIBUTION AND CONTROL	PRINCIPLE	Avoid target overkill	Use each wpn in its best role	Concentrate on long-range tgt	Engage only targets that offer a high probability of hit	Take best shots possible	Expose only wpns/vehicles that must fire	Destroy most dangerous tgt(s) first	Maintaín combat loads as long as possible-plan resupply
		ITEM	-	2	က	4	ည	9	7	8
5										

DEFENDING DURING LIMITED VISIBILITY

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5.12.2	DEFENDING DURING LIMITED VISIBILITY	ACTION	Plan required movement of weapons, units, and massing of fires on enemy approaches	Rehearse movement of weapons, units, and massing of fires on enemy approaches	Reposition weapons to take advantage of differences between enemy and friendly STANO devices	Plan illumination on or behind engagement areas to silhouette enemy	
		ITEM	9	7	æ	တ	
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DEFENDING DURING LIMITED VISIBILITY	ACTION	Move TRPs and/or EAs closer to defensive positions or move weapons closer to them-use METT-T	Commence adjustments to defensive organization before dark	Complete return to daylight positions before dawn	Move closer to avenue(s) of approach you guard during bad weather	Be aware that sensors and radar may still penetrate bad weather	
	ITEM	10	-	12	13	14	
							•

2															
5.13.1	CAMOUFLAGE	ACTION	Prepare individual equipment	Helmet-break form	Face and hands-disrupt	Weapons-disrupt	Shine-darken/conceal	LBE-darken	Consider position carefully	Consider enemy viewpoint	Use natural concealment	Blend with background	Expose nothing that shines	Avoid unneeded movement	Keep camouflage discipline
		STEP	-	1A	1B	10	۵ı	1E	2	8	4	5	9	2	æ
5															

1 -
Observe from prone position
Don't skyline when moving Inspect the following areas
Individuals
Fighting positions Vehicles
Routes-in and out
Noise/light discipline plan
Camouflage nets
Stand-to plan
Enemy's viewpoint/OPs

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5.14.1	VEHICLE CAMOUFLAGE	ACTION	Break up the silhouette	Use camouflage nets to hide vehicles in positions	Reduce glare of mirrors, headlights, vision blocks, windshields, and optics	Reduce vehicle signatures	Reduce noise	Do NOT slam hatches or doors	Only start and move vehicles as part of plan or operation	Start all vehicles at same time
		STEP	1	2	င	4	2	5A	5B	5C
2										

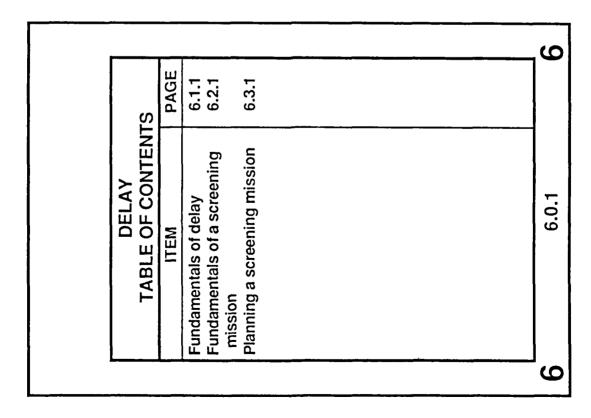
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PHYSICAL SECURITY	ACTION	Conduct patrols	Conduct stand-to (general)	All troops awake, dressed, and ready for combat	Top off vehicle(s)	Basic load of ammo/missiles	Clean, service, assemble, and ready wpns for action	Radios on and briefly tested	Fully load vehicle(s)	Ready vehicle(s) for short- notice moves	5.15.1
	ITEM	-	2	2A	28	2C	2D	2E	2F	2G	
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5.15.2	PHYSICAL SECURITY	ACTION	Conduct stand-to (evening)	Place vision block covers in position	Place driver's night vision viewer into operation	Test all panel control lights	Prepare night vision goggles for operation	Turn off all internal lights	Upload all wpns and ammo	Test turret drive/stabilization	Test thermal sights
		ITEM	3	3A	3B	3C	3D	3E	3F	3G	3Н
2											

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PHYSICAL SECURITY	ACTION	Charge vehicle(s) battery	Load main gun with vehicle running	When dark, dismount to inspect each vehicle to insure no light is visible	Silent mounted watch	Assign pers areas to use vehicle sights for surveillance	Raise launcher/ramp before turning engine off	Use manual power to traverse/elevate/depress turret and weapons	5.15.3
	ITEM	3	33	æ	4	4A	48	4C	
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5.15.4	PHYSICAL SECURITY	ACTION	Use radio listening silence	Set up rotating schedule for troops using thermal sight(s)	Lay main gun on primary enemy avenue of approach or engagement area	Dismount local security	Assign sectors to elements	Have elements observe sectors	Adjust positions closer to vehicle(s) at night
		ITEM	4D	4E	4F	5	5A	5B	5C
5									

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	S	PAGE	
6.0.2	DELAY TABLE OF CONTENTS	ITEM	
9	· · · · · · · · · · · · · · · · · · ·		



		FUNDAMENTALS OF DELAY		
	ITEM	ACTION	>	
	-	Centralized control and decentralized action		
	1A	Maintain enemy contact		
	1B	Coordinate flank security		
	2	Make maximum use of terrain		
	2A	Observation/fields of fire		
	2B	Cover and concealment		
	2C	Obstacles		
	2D	Key terrain		
	2E	Avenues of approach		
	3	Force en to deploy/maneuver	_	
9		6.1.1		ဖွ

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6.1.2	FUNDAMENTALS OF DELAY	ACTION	Slow enemy's progress	Trade space for time	Use obstacles	Natural and reinforcing	Cover by observation/fire	Maintain enemy contact	Keep enemy in sight	Observe and adjust fires	Keep free to maneuver	Avoid decisive engagement
	正	ITEM	3A	3B	4	4 A	4B	5	5A	5B	5C	9
9		· · ·										

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FUNDAMENTALS OF DELAY M ACTION	Make en deploy, develop sit, & maneuver to attack psn(s)	Displace to next position before decisive engagement	Forms of delay missions	Delay in sector	Delay forward of a line or position for a specified time	Assign definite sectors	To each committed unit	For each avenue of approach	Each unit sets up own security	613
FI	6A	6B	2	7.A	78	æ	8A	8B	6	

9										
		>								
6.2.1	FUNDAMENTALS OF A SCREENING MISSION	ACTION	Assign when Cdr has few troops aval and wants to keep area under surveillance	Cdr expects early warning/ counter enemy recon	Provide warning en approach	Gain/maintain enemy contact	Report enemy activity	Destroy/repel enemy recon	Impede and harass enemy with indirect fires.	Guide reaction forces
		ITEM	-	8	က	4	ည	9	7	8
9										

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	PLANNING A SCREENING MISSION	
ITEM	ACTION	>
_	Cdr specifies	
1A	Unit to perform mission	
18	General trace of initial screen within range of main body's artillery	
15	Time screen must be in place	
10	Passage points and routes through stationary units	
1E	Units that will be screened	
+	Phase line for rear boundary of screening unit between main body and screening unit	
	6.3.1	9

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		>								
6.3.2	PLANNING A SCREENING MISSION	ACTION	Responsibility for area between screening/screened unit(s)	Width of assigned area	Screened unit(s) may have to	Establish OP near position(s)	Patrol near position(s)	Screening unit must carefully plan and coordinate	Rearward move	Passage of lines
		ITEM	1G	1H	2	2A	2B	အ	3A	3B
9										

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		>							
1.0.0	PLANNING A SCREENING MISSION	ACTION	Indirect fire planning	Routes and/or sectors for rearward displacement	Logistics plan				
		ITEM	4G	4H	4	Notes:			
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4D	
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ITEM	
	1TEM 4A 4B 4B 4D 4C 4F 4F

}	PAGE	7.1.1	3.1	4.1	7.5.1		7.6.1		7
WITHDRAW TABLE OF CONTENTS	ITEM	Disengagement planning 7	ation	al under enemy	pressure Withdrawal not under enemy 7	pressure	Relief in place		

7			
	S	PAGE	
7.0.2	WITHDRAW TABLE OF CONTENTS	ITEM	
7			

 4. Location of new positions
 3. Priority of disengagement
 2. Time of disengagement
 1. Scheme of maneuver
 DISENGAGEMENT PLANNING

7.1.2	DISENGAGEMENT PLANNING	5. Size and composition of advance	parties	6. Size and composition of overwatch	forces		7. Location of overwatch forces		o Combat conting cumpart	o. Collidat service support		

	>	-					· · · · · · · · · · · · · · · · · · ·				_
DISENGAGEMENT ACTIONS	ACTION	Deceive the enemy	Smoke	Patrols	Fires	Radio transmissions	Use overwatch elements to keep enemy pressure off disengaging forces	Maintain OPSEC	Maintain COMSEC	Recon routes	7.2.1
	ITEM	-	4	18	10	1D	7	က	4	ည	
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	(>									
7.2.2	DISENGAGEMENT ACTIONS	ACTION	Prepare routes	Recon new positions	Prepare new positions	Plan to move wounded	Plan for movement of recoverable combat equip	Move combat service support early	Move during limited visibility	Use obstacles to slow or stop enemy	
	ם 	ITEM	9	7	8	6	10	11	12	13	
7									<u> </u>	<u> </u>	

PASSAGE OF LINES COORDINATION 1. Disposition of the stationary force 2. Contact points	Passage lanesAttack position (forward move)Assembly area (rearward move)
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WITHDRAWAL UNDER ENEMY PRESSURE	ACTION	Withdrawal principles	Co Cdr controls sequence of plt withdrawals	Pit idr controls sequence of squad withdrawals	Fire/move to rear-basic tactic	Empl all aval fires to stop en	Use smoke to confuse en and conceal movement	One unit forms base of fire to cover movement of other unit(s) away from enemy—	uleil uley vilalige loies
	ITEM	-	14	18	10	10	#	1	

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		>								
7.4.2	WITHDRAWAL UNDER ENEMY PRESSURE	ACTION	Methods of disengaging	Simultaneous	By teams	By thinning the lines	Based on enemy situation, terrain, and base of fire	Base of fire	AT weapons best against enemy mounted attack— move them back first	
		ITEM	2	2A	2B	2C	2D	က	3A	
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WITHDRAWAL UNDER ENEMY PRESSURE	ACTION	Infantry best in close terrain/ limited visibility/against dismounted enemy-move	Plan for AND specify	Scheme for maneuver	Time of withdrawal	Location of new positions	Size/make-up of advance party	Size/make-up of overwatch forces	
	ITEM	3B	4	4A	4B	4C	4D	4E	

1												_
		>										
7.4.4	WITHDRAWAL UNDER ENEMY PRESSURE	ACTION	Battle/overwatch positions	Routes	Checkpoints	Remount point(s)	Evacuation of wounded	Evacuation of equipment	Priorities	Obstacles	Items to destroy	
i		ITEM	4F	4G	4H	41	4J	4K	4F	4M	4N	
7								_				

1 Withdrawal principles 1 Speed/secrecy/deception 1 At night/under periods of reduced visibility 1 C As part of larger force to perform another mission 2 Does plt act as co scty force? If YES, go to STEP 3. If NO, go to STEP 4. 3 Cover entire co area to cover company withdrawal	WITHDRAWAL NOT UNDER ENEMY PRESSURE
>	NOI
	nciples
	y/deception
	r periods of Ility
	per force to ner mission
0	co scty force? TEP 3. EP 4.
	o area
	tion sqds/wpns bany withdrawal

7.5.1

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7.5.2	WITHDRAWAL NOT UNDER ENEMY PRESSURE	ACTION	Place 1 sqd in each plt psn to cover most dangerous AA	Place key wpns in each plt psn to cover most dangerous AA	Co XO or plt Idr will be scty force Cdr	Force made up of 1 sqd, 1 mg tm, and 2 dragons	SL left in psn is plt scty force ldr	Reposition sqd to cover plt withdrawal and plt area
		ITEM	3B	3C	30	4	44	4B
7								

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WITHDRAWAL NOT UNDER ENEMY PRESSURE	ACTION	Co scty force Cdr controls plt scty force during withdrawal	Security force	Conceals withdrawal	Deceives enemy-keeps up normal co operating patterns	Provides covering fire if enemy attacks during withdrawal	Withdraws when company is at next psn or as ordered	Gets withdrawal order by land line or radio codeword	7.5.3
	NEL	4C	5	5A	5B	5C	5D	2E	
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7.5.4	WITHDRAWAL NOT UNDER ENEMY PRESSURE	ACTION	Uses same basic plan as co to withdraw	Reassembles to move to rear	If under attack, conducts fire and maneuver to rear until they break contact	Quartering party	Send to next position before withdrawal starts	Has PSG and 1 guide for each squad as plt reps	Recons and selects psn/ sectors/routes/OP for plt	
		ITEM	5F	5G	5Н	9	6A	6B	၁၅	
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7	WITHDRAWAL NOT UNDER ENEMY PRESSURE	
ITEM	ACTION	>
G9	Meets and guides plt into psn	
99	PSG meets/briefs plt ldr on position/situation	
7	Company OPORD contains	
7.A	Time withdrawal will start	
7B	Location of plt assy area(s)	
7C	Location of co assy area	
7D	Plt mission(s) upon arrival	
7E	Route from plt to co assy area	
7F	Size/org/Cdr of scty force	
		1

7.5.5

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7.5.6	WITHDRAWAL NOT UNDER ENEMY PRESSURE	ACTION	Next co mission	Next plt mission	Pit Idr plans	When his withdrawal starts	Location of sqd assy areas	Location of plt assy areas	What sqds do at assy area(s)	Routes from sqd assy areas to plt assy area	Size/org/Cdr of scty force	
	1	ITEM	5/2	Н2	8	8A	88	8C	8D	8E	8F	
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WITHDRAWAL NOT UNDER ENEMY PRESSURE	ACTION	Next plt mission	Next sqd mission(s)		7.5.7
^	ITEM	98	8H	Notes:	
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7.6.1	RELIEF IN PLACE	ACTION	Incoming leader recons area	Incoming and outgoing leaders coordinate	Exchange liaison personnel	Coordinate positions of weapons and vehicles	Exchange range cards and fire plans	Exchange relief or organic fire support elements	Coordinate loc(s) of obstacles	Transfer responsibility for minefields
		ITEM	-	7	3	4	5	9	2	8

									
Г						· · · · · · · · · · · · · · · · · · ·			_
RELIEF IN PLACE	STEP ACTION	9 Coordinate routes into and out of positions	10 Coordinate guides for each vehicle	11 Transfer excess ammo, wire lines, POL, and other material to incoming unit	12 Coordinate commo for one net during relief	13 Coordinate enemy situation and intelligence	14 Coordinate sequence of relief	15 Coordinate time of change of responsibility for the area	7.6.2
L	141	1	<u> </u>	<u>. </u>	<u> </u>	<u> </u>	L	<u>. </u>	' /

7											
7.6.3	NOTES										
7											

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	တ	PAGE		
8.0.2	PATROL/RECON TABLE OF CONTENTS	ITEM		
8				

TS PAGE	8.1.1	8.3.1 7.4.3 7.4.1	8.6.1	8.8.1	8.10.1	8.11.1	8.13.1	8.15.1	8.16.1	8.17.1	8
PATROL/RECON TABLE OF CONTENTS ITEM	Patrol planning steps Patrol warning order	Patrol order Patrol report	Occupation of patrol base Operation of patrol base	Principles of a raid Conduct a raid	Principles of an ambush	Organize an ambush Conduct an ambush	Plan a recon mission	Leading a recon patrol Conduct area recon mission	Conduct a route recon mission	Conduct a zone recon mission	8.0.1
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8.2.1	PATROL WARNING ORDER	1. Statement of situation				2. Mission of the patrol				3. General instructions	a. General and specific situation			b. Common uniform/equipment				
	- 							· <u> </u>										
			PATROL PLANNING STEPS	TEP ACTION	Study mission	Reverse planning	Study terrain and situation	Organize patrol	Select men/wpns/equip	Issue warning order	Coordinate	Make recon	Complete detailed plans	10 Issue order	Supervise/inspect/rehearse	12 Execute mission	Votes:	8.1.1

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8.2.3	g. Times and place for inspections/	rehearsals		4. Specific instructions	a. To subordinate leaders		To choose a surrocce to and or loss	jobs				
					l i	 1 1				 -		 ∞
		PATROL WARNING ORDER	c. Wpns/ammo/equip		d. Chain of command	e. Time schedule			f. Time/place/uniform and equip for			8.2.2

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order

(1) Mission of next nigner	Friendly forces (1) Mission of next higher unit		(4) Weather	(3) Activity	(2) Location	ituation Enemy forces (1) Identification	PATROL ORDER
(1) Mission of n	1 1 1	(4) Weather (5) Terrain (b. Friendly forces (1) Mission of n	(4) Weather (5) Terrain	(3) Activity		 Situation a. Enemy forces (1) Identification 	PATROL

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8.3.2	PATROL ORDER	(2) Location/planned actions of units on right and left		(3) Msn and routes of other patrols	(4) Fire support available	c. Attachments and detachments	2. Mission			
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8.3.4	PATROL ORDER (3) Route (primary/alternate)	(4) Departure and reentry of lines_	(5) RPs and actions at them	(5) Action at danger areas	(7) Action on enemy contact	(8) Action at the objective		
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PATROL ORDER (9) Fire support (10) Intelligence requirements 4. Service support a. Rations and water b. Arms and ammunitions c. Uniform and equipment d. Handling wounded/POW/captured equip 8.3.5				1 1	<u> </u>	1		∝
	PATROL ORDER (9) Fire support	(10) Intelligence requirements	(11) Other tasks	Service support a. Rations and water	1	1 1	d. Handling wounded/POW/capturedequip	8.3.5

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BATROL REPORT G. Enemy H. Map corrections J. Miscellaneous information K. Results of enemy encounters L. Condition of patrol M. Conclude/recommend M. Conclude/recommend

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SELECTION OF A PATROL BASE	ACTION	Pick site of patrol base from map or aerial recon during planning	Base is tentative	Plan for alternate base site	Use if initial site is unsuitable	Recon alternate site and keep under observation until you occupy or no longer need it	Select base so patrol can accomplish msn and consider	Terrain of little tactical value to enemy	8.5.1
SEI	STEP	٢	2	3	3A	38	4	4A	
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8.5.2	SELECTION OF A PATROL BASE	ACTION	Difficult terrain which makes foot movement hard	Area of thick vegetation	Area near source of water	Plan for	OPs	Commo with OPs	Defense of base	Withdrawal from base (route(s), rally point(s), rendezvous point(s), and an alternate base)
	SEL	STEP	4B	40	4D	5	5A	5B	5C	5D
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SELECTION OF A PATROL BASE	ACTION	Security system to ensure all needed troops are awake	Enforcement of camouflage, noise, and light discipline	Needed activities with minimum movement/noise	Avoid the following	Known/suspected en psns and built-up areas	Ridges and hilltops, except if needed to keep commo	Roads/trails/wet areas/slopes	Small valleys	8.5.3
SEL	STEP	5E	5F	5G	9	6A	6B	90	Q9	
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8.6.1	OCCUPATION OF PATROL BASE	ACTION	Approach	Halt patrol 200–400 meters from tentative patrol base site	Post security	Element leaders, RATELO, and security team join patrol leader and move forward to recon patrol site	Recon	Patrol leader designates entry point as 6 o'clock	Patrol leader moves to and designates center of base as patrol CP
	၁၁၀	STEP	1	1A	18	10	2	2A	28
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OCCUPATION OF PATROL BASE	ACTION	Element leaders recon their assigned sectors and then return to CP	Patrol leader sends 2 men back to bring remainder of patrol forward	Occupation	Patrol enters base in single file	Camouflage signs of patrol's entry into area	Leader checks perimeter by meeting each element leader at left flank of each sector	8.6.2
Ö	STEP	2C	2D	က	3A	3B	4	
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8.6.3	OCCUPATION OF PATROL BASE	ACTION	Both move clockwise to end of sector	Check each sector until entire perimeter checked	All element leaders send out R&S team to recon forward of element's sector	Team moves out from left flank and moves clockwise to right limit of sector	Team re-enters at right flank	Each R&S team reports	Signs of enemy activity
	၁၁၀	STEP	4A	4B	5	5A	2B	9	6A
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၁၁၀	OCCUPATION OF PATROL BASE	SE
STEP	ACTION	>
6B	Suitable OP locations	
29	Possible rally points	
Q9	Withdrawal routes	
7	Patrol leader designates	
7A	Withdrawal routes	
78	Rally point outside base	
8	Each element	,
8A	Puts out OP	
8B	Establishes commo with patrol OP	i
Notes:		

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8.7.1	OPERATION OF PATROL BASE	ACTION	Security	Only one point of entry/exit	Camouflage and guard entry/exit point	Allow only required moving inside and outside base	Keep fires small/smokeless and build in pit	Only permit noisy work when other noise will cover it	Stand-to	Hold both morning/evening
	ОР	STEP	1	1A	1B	10	1D	#	2	2A
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OPERATION OF PATROL BASE	P ACTION	Vary times to prevent pattern	Must last long enough to accomplish purpose	Plan defensive measures	Defend base when you cannot evacuate	Do not build complete fighting positions	Stress camouflage and concealment	Make fire plan	Put early warning devices on avenues of approach	8.7.2
ō	STEP	2B	2C	က	3A	38	30	4	47	
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8.7.3	OPERATION OF PATROL BASE	ACTION	Put mines/tripflares in places that fire cannot cover	Make withdrawal plan to rally at rally point/rendezvous point/alternate patrol base	0	Establish with higher HQ/ OPs/within patrol	Control radio to not alert en	Use wire within base	Use tug/pull wires to signal	Maintain weapons/equipment
ļ	ERATIC		Put mi that fir	Make w at rally alternal	Commo	Establ OPs/w	Contro	M es W	Use tu	Maintai
	ОР	STEP	4B	2	9	6A	6B	29	Q9	7
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ERATION	၂ တ	Catholes outside perimeter in day, inside at night Wash, shave, and brush teeth on regular basis	Conceal trash or carry with patrol	Establish eating/sleeping shifts and maintain security	Water	Guard water details	No more than 2 trips per 24-hour period	1 10
OPI STEP	STEP 8	8A 8B	8C	o	10	10A	10B	

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8.7.5	OPERATION OF PATROL BASE	ACTION	Continue to plan and prepare for mission	When departing, remove and conceal all signs of patrol	::	
	ОР	STEP	11	12	Notes:	
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8.8.2	PRINCIPLES OF A RAID	PRINCIPLE	From unexpected direction, such as approaching from the rear or through impassable terrain	Concentrate fire at critical points to suppress enemy	Achieve violence by	Gaining surprise	Using massed fire	Attacking aggressively		
		ITEM	3C	4	C)	5A	5B	2C	Notes:	
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CONDUCT A RAID	ACTION	Patrol moves to ORP for recon patrol	Secure ORP	Conduct recon with leaders	Confirm plans	Coordinate movements of elements so all reach their positions at same time	Security element	Move to positions to secure ORP	Give warning of enemy approach	8.9.1
	STEP	-	1A	18	10	40	7	2A	2B	
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8.9.2	CONDUCT A RAID	ACTION	Block avenues of approach into objective area	Prevent enemy escape from objective area	Inform patrol leader of all enemy action	Shoot only if detected or on patrol leader's order	During assault, prevent enemy from entering into, or escaping from, objective area	At end of assault, cover withdrawal of assault and support elements to ORP
		STEP	2C	2D	2E	2F	2G	
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8.9.4	CONDUCT A RAID	ACTION	Protect demolition/search teams while they work	Withdraw to ORP on oral order/signal	Reorganize patrol at ORP	Move about 1000 m or 1 terrain feature away from ORP	Disseminate information	Redistribute ammunition	Treat casualties	Give status reports
		STEP	4C	4D	5	5A	2B	25	5D	2E
∞										

	P	PRINCIPLES OF AN AMBUSH		
	ITEM	PRINCIPLE	>	
	1	Ambushes		
	1A	Place effective fires on site from all positions		
	1B	Well-trained teams		-
	10	Simple, effective plan		
	1D	Soldiers aware of their duties		
	1E	Recon area beforehand		
	1F	Do not let enemy find out what you plan to do		
	16	Security in all phases of operation, ESPECIALLY WHEN RETURNING to friendly lines or base camp		-
σ		8.10.1		3

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8.10.2	PRINCIPLES OF AN AMBUSH	PRINCIPLE	Placement of men and siting of weapons	First priority to concealment and fields of fire	Simple and clear signal to open/shift/cease firing	Area ambush	Cover all approaches and lay out in width or depth	Self-contained teams	One team springs ambush	Linear ambush	
	ld	ITEM	1H	11	L1	2	2A	2B	2C	က	
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PRINCIPLES OF AN AMBUSH	PRINCIPLE	One avenue of approach	Place elements along road/ trail to give width and all- round defense	Use all concealment	Linear ambush organization	Security element/teams on flank	Assault element with support and search teams	Mines/footspikes on far side of kill zone	Vehicular ambush	8.10.3
PF	ITEM	3A	3B	3C	4	4A	4B	4C	5	
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	USH	>	es		- usr						kes	
8.10.4	PRINCIPLES OF AN AMBUSH	PRINCIPLE	Stop lead and trail vehicles in kill zone	Kill armor first	Organize like linear ambush	Night ambush	Similar to day ambush	Use claymores, grenades, and automatic weapons	Control of soldiers is vital	Issue clear orders/signals	Fix sectors of fire with stakes	
	dd	ITEM	5A	5B	2C	9	6A	6 B	29	Ф9	9 9	
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NCIPLES OF AN AMBUSH PRINCIPLE Move into positions after EENT Plan for illumination 2 Surprise 3 Stops target from effectively preparation/execution Preparation/execution 2 Surprise 3 Stops target from effectively preparation/execution 3 Stops target from effectively preparation/execution	ES OF AN AMBUSH Into positions after or illumination or illumination or illumination 28 28 28 20 20	∞		>									
OF AN AMBUSH NCIPLE Sositions after Imination	SINCIPLES OF AN AMBUSH PRINCIPLE Move into positions after EENT Plan for illumination	8.11.1	ORGANIZE AN AMBUSH		Types of ambush	Point ambush (single kill	zone)	Area ambush (multiple related point ambushes)	Surprise	Allows patrol to seize control of the situation	Stops target from effectively reacting	Comes from good planning/ preparation/execution	Coordinate all fires
OF AN AMBUSH NCIPLE oositions after mination	Move into positions after EENT Plan for illumination			STEP	1	14	2	18	2	2A	28	2C	2D
OF AN NCIPLE sositions	PRINCIPLES OF AN PRINCIPLE Move into positions EENT Plan for illumination:	p						·	···				
	PRII 66 66 Notes:				SH	>							

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	PR	PRINCIPLES OF AN AMBUSH	Ŧ	
	ITEM	PRINCIPLE	>	
	6F	Move into positions after EENT		
	99	Plan for illumination		
	Notes:			
ω		8.10.5		. ω

STEP ACTION 3A Position all weapons, mines, and demolitions 3B Isolate kill zone to prevent escape/reinforcement 3C Deliver large volume of highly concentrated fire into kill zone 3D Inflict maximum damage so you can quickly assault and destroy target 4 Control movement to/ occupation of/withdrawal from ambush site 5 Control measures provide 5 S.11.2	1						 		ျထ
3A 3B 3B 3B 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ORGANIZE AN AMBUSH	Pocition of monage mines	and demolitions	Isolate kill zone to prevent escape/reinforcement	Deliver large volume of highly concentrated fire into kill zone	Inflict maximum damage so you can quickly assault and destroy target	Control movement to/ occupation of/withdrawal from ambush site	Control measures provide	8.11.2
	L L	SIEP	A P	3B	3C	3D	4	5	

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8.11.3	ORGANIZE AN AMBUSH	ACTION	Early warning of tgt approach	Holding fire until target moves into kill zone	Opening fire at proper time	Initiation of proper action if enemy detects ambush	Lifting/shifting of supporting fire	Timely and orderly withdrawal of patrol to ORP	Signal to open fire	Change signals to prevent pattern
		STEP	2A	5B	2C	5D	5E	5F	5G	9
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STEP ACTION 6A Using arm and hand/radio/ field phone 6B For security team to signal target's approach 6C To start ambush (casualty- producing) 6D To shift fire when you assault target (voice/whistles/flares) 7 Fire discipline 7A Withhold fire until signal 7B Deliver immediately 8.11.4										∞
6A 6B 6C 6C 6D 7 7A 7B	ORGANIZE AN AMBUSH ACTION	Using arm and hand/radio/ field phone	For security team to signal target's approach	To start ambush (casualty- producing)	To shift fire when you assault target (voice/whistles/flares)	To withdraw (voice/whistles/flares)	Fire discipline	Withhold fire until signal	Deliver immediately	8.11.4
	STEP	6A	6B	9	6D	6E	7	7A	7B	

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8.11.5	ORGANIZE AN AMBUSH	ACTION	Well timed and well aimed	Precise lifting and shifting	Withdrawal to ORP	Recon withdrawal routes	On signal, patrol withdraws to ORP, reorganizes, and starts return march	Halt 1000 m from objective and disseminate information	Bound if ambush fails	Conceal withdrawal and use mines along withdrawal routes to stop pursuit
		STEP	2/	QZ	8	8A	8B	38C	G8	8E
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		CONDUCT AN AMBUSH		
(2)	STEP	ACTION	>	
	-	Ambush formation based on	i	
l '	1A	METT-T		
Ι'	18	Ease of control		
-	10	Target you are attacking		
-	1D	Overall combat situation		
	2	Patrol halts at ORP		
``	2A	Establish security		
'`	2B	Confirm patrol's location		
, ,	2C	Conduct recon of objective area to confirm plan		
, ,	2D	Leaders return to ORP		
		8.12.1		∞

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8.12.2	CONDUCT AN AMBUSH	ACTION	Security element	Moves to psns to secure ORP	Moves to flank ambush site	Support/assault elements leave ORP when security team is in position	Occupy ambush positions	Is there a suitable position for support element to watch assault element's move? If YES, go to STEP 4D. If NO, go to STEP 4C.	Both elements leave ORP at same time
		STEP	3	3A	38	4	4A	4B	4C
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CONDUCT AN AMBUSH	ACTION	Support elem overwatches assault element's move to ambush site	Patrol waits for target when all elements are in position	Security team alerts patrol when target approaches	Security team leader reports	Direction of movement	Target size	Special weapons/equipment	Patrol leader alerts other elements	8.12.3
	STEP	4D	5	9	7	7A	7B	7C	8	

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		\							
8.12.4	CONDUCT AN AMBUSH	ACTION	Patrol leader gives signal to start ambush when majority of target is in kill zone	is assault element required to assault kill zone? If YES, go to STEP 11. If NO, go to STEP 12.	Give signal to lift or shift fire	Signal withdrawal to ORP upon mission completion	Account for equip/pers	Move to suitable location and disseminate information	Patrol returns to friendly lines
		STEP	6	10	11	12	12A	12B	12C
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PLAN A RECON MISSION	ACTION Make estimate of the situation	Current intelligence	Capabilities of unit	Tailor unit to support mission	Plan	Intelligence	Deceptive measures	Use of smallest unit posible to accomplish mission	Remain undetected	Use of STANO devices
_	STEP 1	1 A L	18	5	2	2A	2B	2C	2D	2E

PLAN A RECON MISSION STEP ACTION ARke estimate of the situation Capabilities of unit Capabilities of unit to support mission Plan Intelligence Deceptive measures Use of smallest unit posible PLAN A RECON MISSION 2G Minimize audio and electronic equipment equip equip 3 Subordinate missions 3A Command and control 3B Recon of objective 3C Security of force	∞			>									T	-,-,-,-
34 34 36 37 37 37 38 38 38 38 38 38 38 38 38 38 38 38 38	8.13.2	PLAN A RECON MISSION	PLAN A NECON MISSION		Rehearse plan	Minimize audio and	Inspect recon force and	ednip	Subordinate missions	Command and control	Recon of objective	Security of force	t	•
	i	1	-[<mark>ф</mark>	u,	ပ္ထ	7H		က	3A	38	30	2 legic	
LAN A RECON MISSION ACTION Make estimate of the situation Capabilities of unit Tailor unit to support mission Plan Intelligence Deceptive measures Use of smallest unit posible	∞		į	IS									' Z	
	ω		10	SI	7	>							' Z	

LEADING A RECON PATROL	PRINCIPLE	Can you clearly define and locate your recon objective? If YES, go to STEP 2. If NO, go to STEP 3.	Security elements perform their function from 1 location with mission including	Recon element	Security element	Move into objective area by bounds with R&S teams	For small recon patrol, patrol HQ forms part of recon element or part of R&S teams
H	ITEM	-	7	2A	2B	က	4

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8.14.2	LEADING A RECON PATROL	PRINCIPLE	Determine number and strength of recon/scty/R&S teams according to mission	Techniques of recon patrol	Observe/collect/record information about enemy	Well-rehearsed plan	Use battlefield noises to cover movement	Use binoculars	Establish control measures, alternate withdrawal routes, coordinated fire support
	3 7	ITEM	5	9	6A	89	29	О9	99 9
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LEADING A RECON PATROL	PRINCIPLE	Move by bounds	Recon using R&S teams	Use if you don't have separate scty & recon teams	Allows patrol to perform recon msn and provide scty	Employing R&S teams	Any size recon patrol	Use for leaders' recon	Organizing R&S teams	Use 1 team w/remainder at ORP acting as reaction force	8.14.3
17	ITEM	49	7	7.A	7.8	8	8A	8B	6	9A	
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8.14.4	LEADING A RECON PATROL	PRINCIPLE	Multiple teams with each to recon portion of ORP	2 teams link up at point on far side of objective	1 team with security team acting as reaction force	Security	Use 1 or 2 soldiers to bound	Rest of team provides scty	Vary formation according to terrain	Each member responsible for his specific sector
		ITEM	9B	36	06	10	10A	10B	10C	10D
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CONDUCT AREA RECON MISSION	ACTION	Use surveillance/vantage pts around obj to observe it and surrounding area	Patrol leader halts in ORP	Establish security	Confirm patrol's location	Patrol and elem Idr recon obj	Confirm plan	Return to ORP	Will terrain allow patrol to secure objective area? If YES, go to STEP 5. If NO, go to STEP 7.	8.15.1
CON	STEP	-	2	2A	2B	က	3A	38	4	
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	ION										
8.15.2	CONDUCT AREA RECON MISSION	ACTION	Security element departs ORP	Position scty teams at ORP	Position scty teams on likely enemy AA(s) into objective	Recon element departs ORP	Move to several surveillance/ vantage pts to recon obj	Recon area	Element returns to ORP	Disseminate info	Patrol returns to friendly lines
	CON	STEP	2	5A	5B	9	6A	89	29	Ф9	99
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NOC	CONDUCT AREA RECON MISSION	NO.
STEP	ACTION	>
7	Patrol leader leaves security team in ORP	
4 7	Use R&S teams to recon objective	
78	Move to different surveillance/vantage points to recon objective	
7C	Recon objective	
7D	R&S teams return to ORP	
7E	Disseminate information	
7F	Patrol returns to friendly lines	

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8.15.3

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8.16.1	CONDUCT A ROUTE RECON MISSION	ACTION	Use to obtain information on	Enemy	Obstacles	Route conditions	Critical terrain features along specific route	Types of route recon	Hasty route recon	Deliberate route recon	Route recon of suspect areas
		STEP	ļ	1A	1B	10	1D	2	2A	2B	3
8											

STEP ACTION 3A Use detailed observation before recon mines, boobytraps, and ambush signs 3C Send dismounted personnel first with mounted personnel overwatching 4 Recon by fire AA Fire on likely/suspected en psns to remove camouflage presence by movement or return fire									$ ^{\infty}$
3A 3B 3B 4A 4A 4B	CONDUCT A ROUTE RECON MISSION	ACTION	Use detailed observation before recon	Check approach routes for mines, boobytraps, and ambush signs	Send dismounted personnel first with mounted personnel overwatching	Recon by fire	Fire on likely/suspected en psns to remove camouflage	Cause enemy to disclose presence by movement or return fire	8.16.2
		STEP	3A	38	30	4	4A	4B	

∞										
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8.16.3	CONDUCT A ROUTE RECON MISSION	ACTION	Observe enemy positions to locate enemy	Use when time is critical and loss of surprise not essential	Does enemy return fire? If YES, go to STEP 4F. If NO, go to STEP 4G.	Develop situation	Continue recon	Recon at night	Recon is slower and less effective	-
		STEP	4C	4D	4E	4F	4G	5	5A	
∞										

ss, ltes		
CONDUCT A ROUTE RECON MISSION ACTION Limited to STANO devices, patrolling, and obs of routes Route recon planning details	Plans of higher commands When, where, and how to report information Departure time Appropriate control measures Action to take when you complete mission	8 16 4
STEP 5B	6B 6C 6D 6F	

8										
8.16.5	CONDUCT A ROUTE RECON MISSION	ACTION	Special equip requirements	Terrain considerations	Existing routes and their physical characteristics	Slope gradients and radius curves	Bridges	Vehicle fording, ferrying, and swimming sites	Obstructions to traffic flow	Artificial obstacles and man- made features
		STEP	99		A 2	78	22	α <i>z</i>	7E	7F
∞										

CONDUCT A ROUTE RECON MISSION STEP ACTION The method ACTION ROckfalls and slide areas Breat series of ORPs in zone and series and security The confirm location The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP The select recon routes out from and back to ORP	∞		>		<i>A</i> V						
ICT A ROUTE IN MISSION ACTION and slide areas	8.17.1	CONDUCT A ZONE RECON MISSION	ACTION	Fan method	Select series of ORPs in zone	Go to first ORP	Establish security	Confirm location	Select recon routes out from and back to ORP	Routes must overlap and form fan-shape around ORP	Send out recon elements
ICT A ROUTE IN MISSION CTION and slide areas			EP	-	١A	1B	၁	Ω	Ш	ш	5
ICT A ROUT	∞		S								
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CONDUCT A ROUTE RECON MISSION	ACTION	Rockfalls and slide areas	Drainage		8.16.6
	STEP	5 2	7H	Notes:	
					ω

1	CONDUCT A ZONE RECON MISSION	
	ACTION	>
	Keep 1 element in ORP	
1	Send elements out on adjacent routes	
	Disseminate information after you recon fan area	
ļ	Move to next ORP	
	Repeat STEPS 1C-1K at each successive ORP	
Į. O .	Converging routes method	
	Select ORP	
	8.17.2	

8									
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8.17.3	CONDUCT A ZONE RECON MISSION	ACTION	Select recon routes through zone/rendezvous point for patrol to link up after recon	Establish security	Confirm patrol's location	Assign recon route to each element	Determine location for rendezvous point	Designate linkup time at rendezvous point	Send recon elements on their assigned routes
		STEP	28	2C	2D	2E	2F	2G	2H
∞									

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CONDUCT A ZONE RECON MISSION	ACTION	Move with center element	Recon routes with fan method	Link up entire patrol at rendezvous point at the designated point	Secure rendezvous point in same way as ORP	Disseminate information at rendezvous point	Repeat STEPS 2A-2M for next rendezvous point	Return to friendly lines
	STEP	21	73	% %	2L	2M	2N	20

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		>							
6.77.8	CONDUCT A ZONE RECON MISSION	ACTION	Successive sector method	Select ORP/recon routes/ rendezvous points	Repeat STEPS 2C-2M until you recon entire zone	Return to friendly zones			
		STEP	3	3A	3B	30	Notes:		
0									

6			
	Ş	PAGE	
9.0.2	COMBAT IN CITIES TABLE OF CONTENTS	ITEM	
6			

		9
ဟု	9.1.1 9.2.1 9.3.1 9.4.1	
COMBAT IN CITIES TABLE OF CONTENTS	Built-up area fighting principles Organize attack on building Attack and clear a building Organize building defense	9.0.1
		_ 6

	BUILT-UP AREA FIGHTING PRINCIPLES	
1	PRINCIPLE	>
	Develop careful, simple plan	
	Attack in depth	
	Move in short bounds	
	Dominate killing areas (streets and crossroads)	
	Clear each house thoroughly	
	Consolidate each house taken	
X	Keep ammo/grenades aval	
\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	Keep equipment light	
) 	Plan for casualty/POW evac	
1	9.1.1	^၂ တ
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9.1.2	BUILT-UP AREA FIGHTING PRINCIPLES	PRINCIPLE	Plan to replace casualties	Street clearing	Move with 1 element on each side of street	Avoid main streets	Use side streets/alleys	All personnel must know killing areas	Have a reserve available	House clearing	Enter from roof, if possible	
		ITEM	10	11	11A	11B	11C	11D	11E	12	12A	
တ												

BUILT-UP AREA FIGHTING PRINCIPLES PRINCIPLE Stay away from doors and windows Breach walls with demo, tank HEP, 25mm HE, claymores Guard wall breach(s) If entering ground floor, never rush to top to clear down Guard and leave cellars last Basement clearing Fire through door Toss in grenade(s) 9.1.3		***************************************								······
BUILT-UP AREA FIGHTING PRINCIPLES PRINCIPLE Stay away from doors and windows Breach walls with demo, tank HEP, 25mm HE, claymores Guard wall breach(s) If entering ground floor, never rush to top to clear down Guard and leave cellars last Fire through door Toss in grenade(s) 9.1.3										
BUILT-UP AREA FIGHTING PRINCIPLES PRINCIPLE Stay away from doors and windows Breach walls with demo, tank HEP, 25mm HE, claymores Guard wall breach(s) If entering ground floor, never rush to top to clear down Guard and leave cellars last Basement clearing Fire through door Toss in grenade(s) 9.1.3	3	>						!		တ
	BUILT-UP AREA FIGHTING PRINCIPLES	Stay away from doors and windows	Breach walls with demo, tank HEP, 25mm HE, claymores	Guard wall breach(s)	If entering ground floor, never rush to top to clear down	Guard and leave cellars last	Basement clearing	Fire through door	Toss in grenade(s)	9.1.3

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		>					
9.1.4	BUILT-UP AREA FIGHTING PRINCIPLES	PRINCIPLE	Enter firing	Search carefully	Guard underground routes	Mark cleared buildings	
		ITEM	13C	13D	13E	14	Notes:
<u></u>							

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ORGANIZE ATTACK ON BUILDING	ACTION	Organize unit into assault force and support force	Designate special wpns/teams	Senior Idr commands aslt force, next senior support force	Assign duties to assault force	Enter building at the highest level possible	Secure breach/entry point	Clear building room by room	Mark each room when clear	Mark building when clear
ORG/	STEP	-	2	က	4	4A	4B	4C	4D	4E

တ											
	NG	>									
9.2.2	ORGANIZE ATTACK ON BUILDING	ACTION	Assign duties to support force	Occupy overwatch position	Isolate bldg with direct/ indirect fires/smoke	Adjust indirect fires	Suppress building and nearby buildings	Cover assault force's move and building entry with fire	Resupply ammo/replace pers	Evacuate wounded/POW	Issue attack order
	ORG	STEP	2	5A	5B	25	2D	5E	5F	53	9
တ											

U,	9.3.1	
	Asit force marks each bidg when cleared	9
	Aslt force marks each room when cleared	C)
	Aslt force clears bldg room- by-room	4
	Asit force enters bidg at highest level possible to gain foothold	ო
	Support force suppresses enemy in bldg and nearby bldg(s) to cover aslt force's move	7
	Support force isolates bldg from overwatch psn	-
>	ACTION	STEP
Ŋ	ATTACK AND CLEAR A BUILDING	ATT

တ	r												
	SE	>											
9.4.1	ORGANIZE BUILDING DEFENSE	ACTION	Select building(s) to defend by considering	Protection	Dispersion	Concealment	Fields of fire	Observation	Covered routes	Fire hazard	Time available	Building strength	
	OR	STEP	-	1A	1B	10	1D	1E	1F	1G	1H	=	
တ													.

STEP ACTION 2 Position teams/vehicles 3 Select primary positions for key dismounted weapons 3A Select alternate positions 3B Select supplementary psns 4 Prepare positions for key dismounted weapons 4A Place mg low for grazing fire place antitank weapons for long range coverage 4C Consider moving to alternate positions during darkness for deception 9.4.2
ORO 2 2 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4

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9.4.3	ORGANIZE BUILDING DEFENSE	ACTION	Prepare rooms in building(s)	Establish command post	Establish OPs	Set up wire commo lines	Stockpile ammo, grenades, water, and food	Cover floors with sand/dirt (not in antitank positions)	Reinforce fighting positions	Camouflage firing positions	Prepare outside of building(s)	
	OR	STEP	2	5A	2B	2C	2D	5E	5F	5G	9	
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	NOTES						4									
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ORGANIZE BUILDING DEFENSE	ACTION	Emplace mines to cover deadspace/approaches	Emplace obstacles to cover deadspace/approaches	Place claymores on roofs, in alleys, and in any other passages you want to deny	Cover all mines/obstacles by observation and fire	Plan for/register indirect fires	Inspect preparations	Correct deficiencies	9.4.4
ORC	STEP	6A	6 B	၁၅	Θ D	7	æ	တ	
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TARGET ACQUISITION	UISITIO	Z S	
ITEM		PAGE	
Spot report		10.1.1	
Target signatures		10.2.1	
Sound ranges at night		10.3.1	
Observation distances with	vith	10.4.1	
naked eye			
Find unknown range		10.5.1	
Find unknown width		10.6.1	
Find unknown mil angle		10.7.1	
Warsaw Pact ADA and AT	Τ	10.8.1	
vehicles			
Warsaw Pact airborne vehicles	ehicles	10.9.1	
Warsaw Pact motorized rifle	rifle	10.10.1	
fighting vehicles			
Warsaw Pact artillery vehicles	hicles	10.11.1	
Warsaw Pact fighters/bombers	mbers	10.12.1	
Warsaw Pact helicopters	·s	10.13.1	
Warsaw Pact recon vehicles	icles	10.14.1	
Warsaw Pact tanks		10.15.1	

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	N.S.	PAGE	10.16.1	1	10.17.1	10.18.1	10.19.1	10.20.1	10.21.1	10.22.1					
10.0.2	TARGET ACQUISITION TABLE OF CONTENTS	ITEM	Maintenance on AN/PVS-5	goggles	Maintenance on an AN/PAS-7	Cleaning methods for an AN/PAS-7	Planning PEWS installation	Preparing PEWS for operation	Installation of PEWS	Perform pre-mission checks on PEWS					
1(

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	SPOT REPORT
LINE	ITEM
-	Size
2	Activity
က	Location
4	Unit
5	Time observed
9	Equipment
7	Source of information
Notes:	
$\rfloor_{f o}$	10.1.1

		•
	TARGET SIGNATURES	•
ITEM	SIGNATURE	>
-	Soldiers	
14	Foxholes	
18	Trash	
5	Damaged vegetation	
10	Fires	
1E	Noise	
2	Tracked vehicles	
2A	Tracks on ground	
28	Fuel spills/diesel smoke	
2C	Track/engine noise	

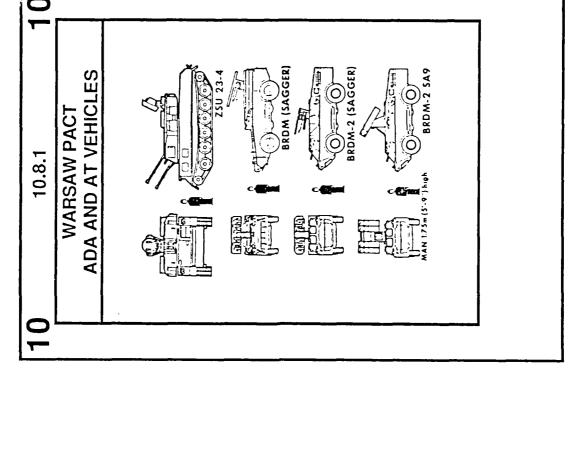
1TEM SIGNATURE 2D Loud, sharp sound-then white smoke 3 Antitank 3A ATGM launch "swish" 3B Long, thin wires 3C Vapor trails—slow ATGM 3D Sharp crack—AT gun 3E Dismounted gunner up to 80 m away from launcher 3F Bright, white flash at night			
٩	ļ	Bright, white flash at night	3F
4 - 0		Dismounted gunner up to 80 m away from launcher	3E
4		Sharp crack-AT gun	3D
- A -		Vapor trails-slow ATGM	3C
A '		Long, thin wires	3B
-		ATGM launch "swish"	3A
		Antitank	3
		Loud, sharp sound-then white smoke	2D
	>	SIGNATURE	ITEM

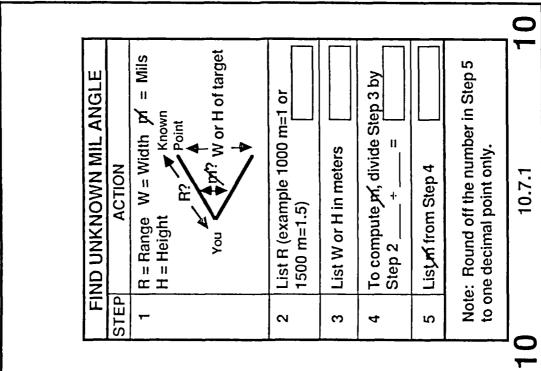
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10.2.3	TARGET SIGNATURES	SIGNATURE	Loud, dull sound	Grayish-white smoke	Bright, orange flash and black smoke-airburst	Rushing noise just before round impacts	Aircraft	Aircraft noise	Glare on aircraft canopies and rotor blades	Vapor trails from fired missiles or aircraft	
		ITEM	44	4B	4C	4D	5	5A	5B	2C	
10											4

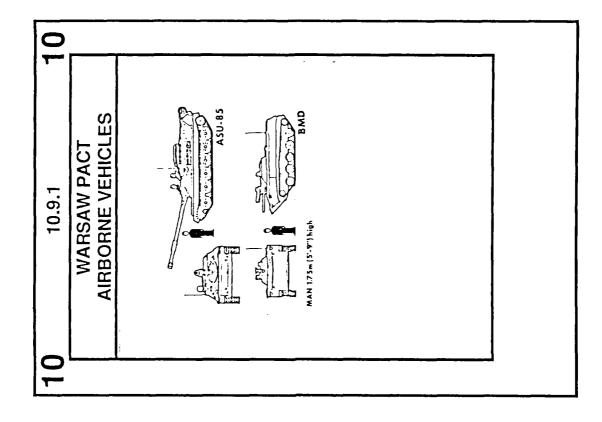
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TARGET SIGNATURES	SIGNATURE	Dust or moving foliage from hovering helicopters	Mines and obstacles	Road repairs/holes filled	Signs placed on posts, trees, or stakes	Wilted plants or brush and strange material on road	Tripwires near AT mines	Areas where locals do not go	Loose/disturbed dirt in pattern	In/near tactical barbed wire	10.2.4
	ITEM	5D	9	6A	6B	၁၅	G 9	6E	6F	99	

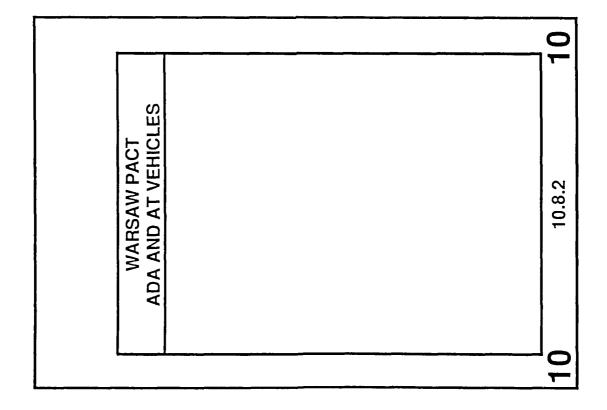
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1	SHT	RANGE IN KM	Up to 15	2–3	3–4		1–2	3–4		Up to .5	Up to 1		Up to .3	Up to .6	
10.3.1	SOUND RANGES AT NIGHT	SOURCE OF SOUND	Cannon shot	Single shot from rifle	Automatic weapons fire	Armored vehicle movement:	• on a dirt road	• on a highway	Motor vehicle movement:	• on a dirt road	• on a highway	Movement of foot troops:	• on a dirt road	• on a highway	

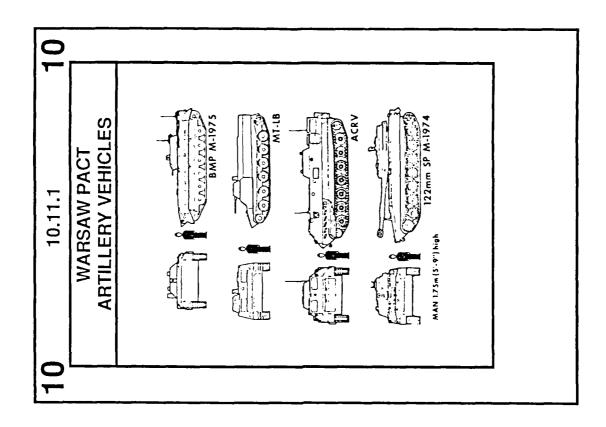
	Notes:
Up to 2	Oars on water
Up to 1.5	Screams
Up to 1	Blows of shovels, pickaxes
Up to .5	Ax blow, sound of a saw
Up to .04	Steps of a single man
Up to .3	A few men talking
Up to .3	Metal on metal
Up to .5	Small arms loading
RANGE IN KM	SOURCE OF SOUND
IIGHT	SOUND RANGES AT NIGHT

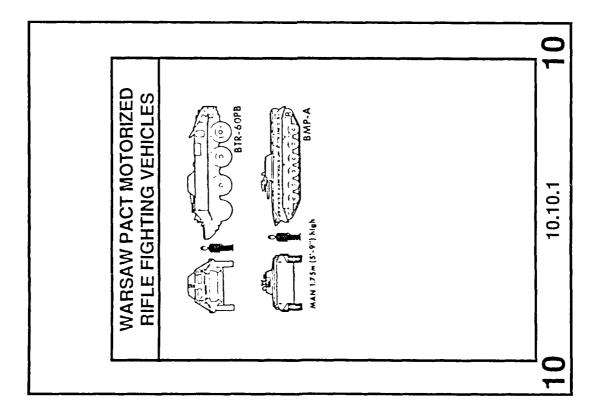


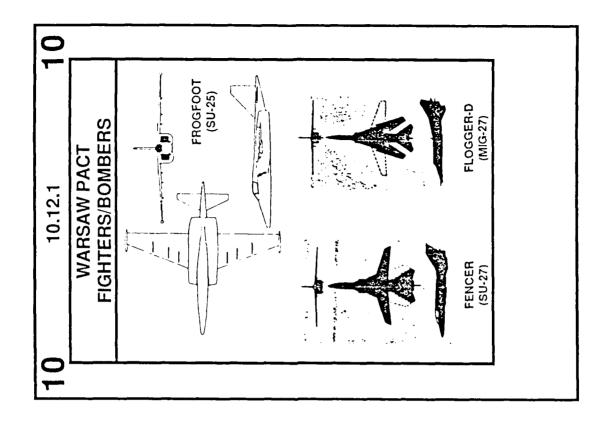


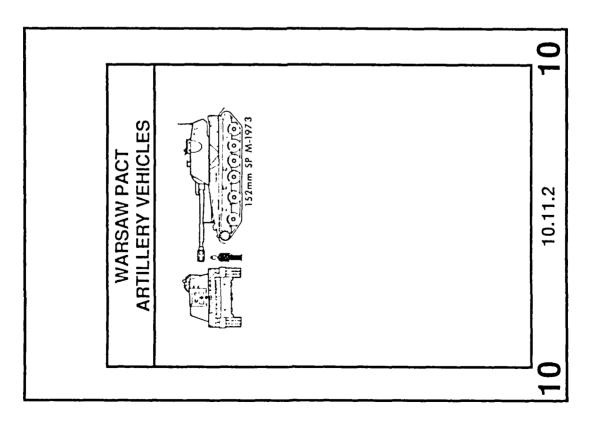


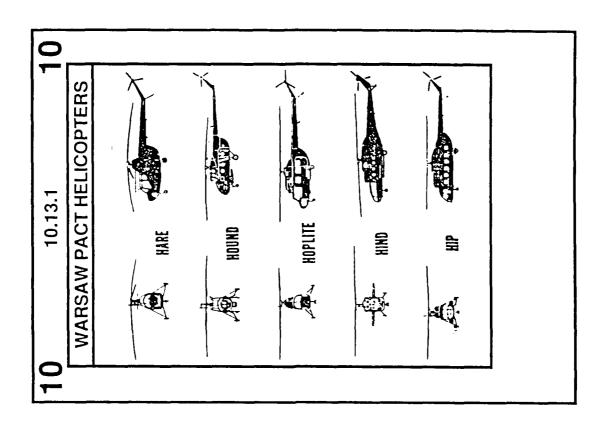


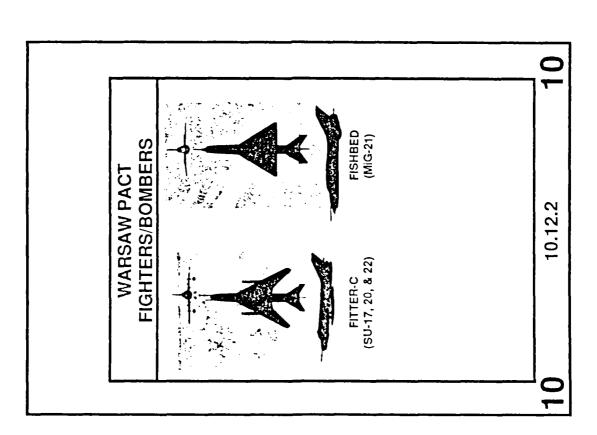


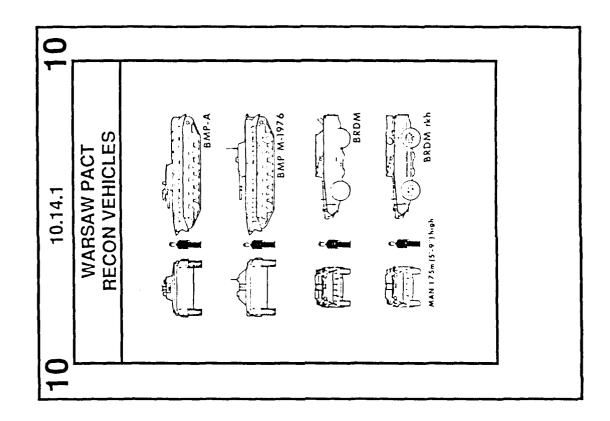


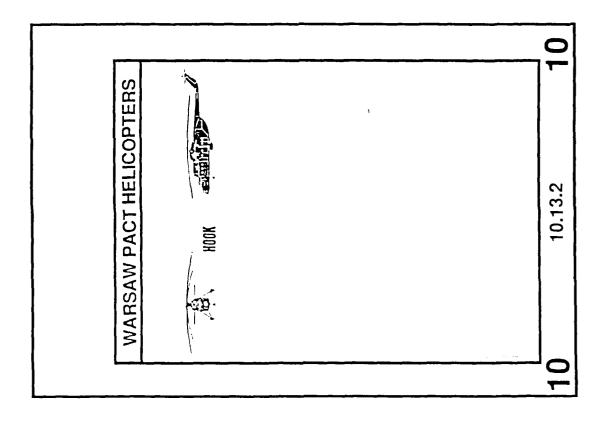


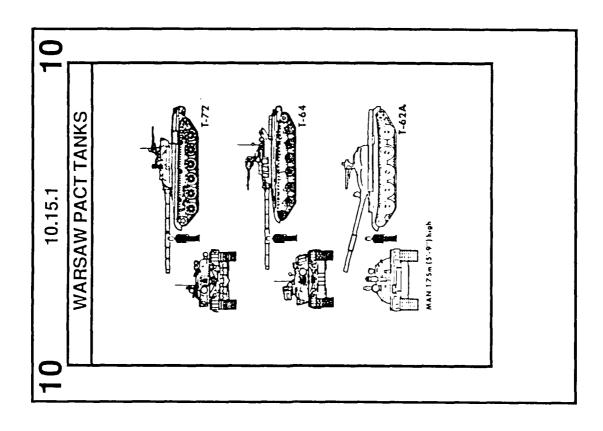


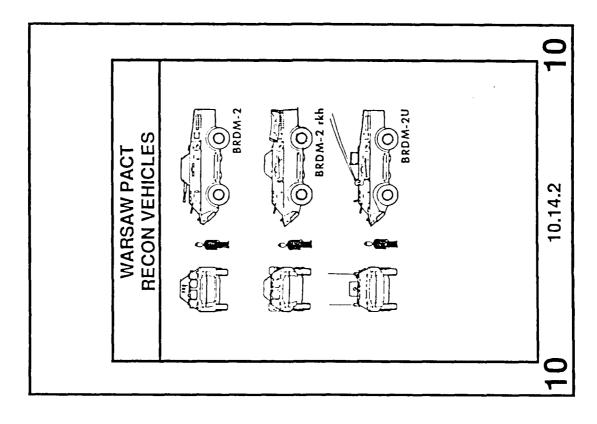




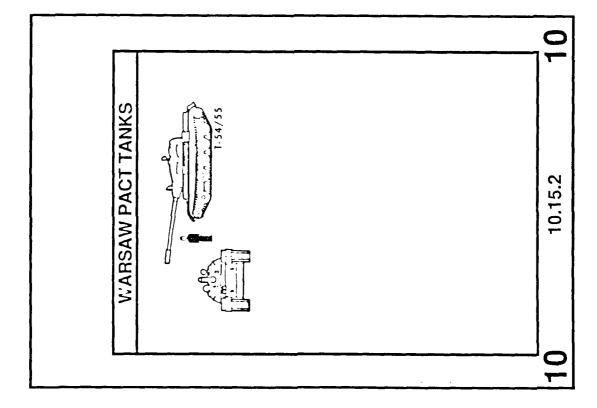








10		10.16.1	10	
		MAINTENANCE ON AN/PVS-5 GOGGLES		
•	STEP	ACTION	>	
	-	Inspect goggles and carrier by removing goggles from carrier to ensure all parts are present		
<u> </u>	2	Inform your Cdr if any of the following parts are missing		
	2A	Binocular assembly		
L	28	Headstrap		
<u> </u>	2C	Lens tissue		
	2D	Socket head key		
	2E	Instruction sheet		
	2F	Demisting shield assembly		
•				



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Clean and dry lens using water and lens paper, if needed	3C
Inspect lens for dirt and damage	3B
Insure eyepiece, objective lens cover, and demisting shields are present	3A
Inspect eyepiece and objective lenses	က
Objective lens cap	21
Eyepiece lens cap	2H
Carrying case	2G
ACTION	STEP
MAINTENANCE ON AN/PVS-5 GOGGLES	

MAINTENANCE ON AN/PVS-5 GOGGLES STEP ACTION 3D Report lens damage to organizational maintenance 4 Inspect exterior surfaces and aluminum housing for damage Wipe exterior with damp, clean cloth to remove dirt and grease 4C Report damage to maint 5 Check clamp knobs so binocular assembly moves freely	2								
3D 3D 4A 4A 4B 4C 5	10.16.3	MAINTENANCE ON AN/PVS-5 GOGGLES		Report lens damage to organizational maintenance	Inspect exterior surfaces	Inspect face mask assembly and aluminum housing for damage	Wipe exterior with damp, clean cloth to remove dirt and grease	Report damage to maint	Check clamp knobs so binocular assembly moves freely
	_		STEP	30	4	4A	4B	4C	က

MAINTENANCE ON AN/PVS-5 GOGGLES	
STEP ACTION	
Check lever clamps so monoculars move freely	
Check diopter adjustment so diopter rings move freely	
Rotate focus knobs so they rotate freely	
Check rotary switch	
Clean carrying case and remove all accessories	
Turn case over and shake dirt out	
Clean exterior and interior with dry, clean, lint-free cloth	
10 16 4	1

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1	S-7	>						į	
10.17.1	MAINTENANCE ON AN AN/PAS-7	ACTION	Check parts of viewer for cleanliness and damage	Check exterior surface	Check infrared window and eyepiece lens	Check rubber eyeshield and operation of security shutter	Check connector for bent or damaged pins	Check neck and hand sling fabric	Check rechargeable battery and battery cleanliness and damage
	MAI	STEP	₹	1A	1B	1C	10	1E	2

	MA	MAINTENANCE ON AN AN/DAS.7	7-7	
	STEP	ACTION		
	2A	Check exterior surfaces		
	2B	Check cable for cracks and breaks		
	က	Check interconnecting cable for cleanliness and damage		
	4	Check connectors and cable for damaged pins		
	5	Check carrying bag for cleanliness and damage		
	5A	Open bag and shake out dirt		
	5B	Remove lint from interior and exterior of bag		
	5C	Check fabric for damage		
\subseteq		10.17.2	7	C

9	10.17.3	-	0
STEP	MAINTENANCE ON AN AN/PAS-7	7.	
20	Check zipper for proper operation		
9	Check transit case for cleanliness and damage		
6A	Remove cover, empty case, and clean case		
е9	Check interior and exterior of case for cleanliness and damage		
09	Check hold down latches for proper operation and for damage		
Notes:	::		
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1	CLEANING METHODS FOR AN AN/PAS-7	
	ACTION	
. —	Lens and window surfaces	
	Pull off rubber eyeshield	
1	Remove dust and dirt from lens with clean camel's hair brush	
	Use lens tissue dampened with lens cleaner for stubborn dirt	
	Clean lens by starting at center and working out toward edge in circular motion	
1	Dry lens with dry tissue using circular motion	
1	10.18.1	-

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_										
10.18.2	CLEANING METHODS FOR AN AN/PAS-7	ACTION	Exterior surfaces	Brush external surface with camel's hair brush	Wipe surface with clean, lint-free cloth	Use cloth dampened with mild detergent and water for stubborn dirt	Dry thoroughly with clean, lint-free cloth	Rubber eyeshield	Wipe with clean, lint-free cloth	
		STEP	2	2A	2B	2C	2D	3	3A	
10										

CLEANING METHODS
FOR AN AN/PAS-7
Use cloth dampened with water for stubborn dirt
Air dry, or dry with a clean, lint-free cloth
Connectors and cables
Remove dirt with a camel's hair brush
Use lint-free cloth dampened with water for stubborn dirt
Air dry or dry with a clean, lint-free cloth
Notes:

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	ON								
10.19.1	PLANNING PEWS INSTALLATION	ACTION	Size of area	Consider size of area to determine how many detectors you need	Detector's maximum range is 10 m	Maximum distance from receiver is 1500 m	Use PEWS to cover areas which other devices cannot cover	When covering a large area, you can place detectors using parallel hot-loop method	
	PLA	STEP	-	1A	18	5	10	1	
10									

10	10.19.2	_
	Type of soil in area	က
	Do not place detectors near streams or rivers	2E
	You must place detectors in bottom of ditch or gully	2D
	Use wire mode for detectors when you cannot accomplish line-of-sight emplacement	2C
	Hills or buildings will block signal in "RF" mode	2B
	Trees and heavy vegetation will decrease operating range in "RF" mode	2A
	Type of terrain	7
>	ACTION	STEP
NO	PLANNING PEWS INSTALLATION	PLA

PLANNING PEWS INSTALLATION PLANNING PEWS INSTALLATION	-	LLATION	3	D.		veedy	or e they				
PLAN STEP 3A 3A Notes:	10.19.3	ING PEWS INSTAI	ACTION	or 10 m radius detecti	lace detectors in hard-	acked soil, grassy or v reas, or wet soil	void sand, loose soil, ock formations becaus	ange			
NING PEWS INSTALLATION ACTION ype of terrain Trees and heavy vegetation will decrease operating range in "RF" mode Hills or buildings will block signal in "RF" mode Use wire mode for detectors when you cannot accomplish line-of-sight emplacement You must place detectors in bottom of ditch or gully Do not place detectors near streams or rivers		LAND	TEP		. <u>u</u>		 		Notes:		
NING PEWS INSTALLATIC ACTION ype of terrain Trees and heavy vegetation will decrease operating range in "RF" mode Hills or buildings will block signal in "RF" mode Use wire mode for detectors when you cannot accomplish line-of-sight emplacement You must place detectors in bottom of ditch or gully Do not place detectors near streams or rivers	10	, L		<u></u>			<u> </u>				
	10				>						 _ _

	>									
PREPARING PEWS FOR OPERATION	ACTION	Prepare receiver ("RF" mode)	Install batteries	Switch "DSPL-TONE-OFF" switch to "OFF"	Release battery cover	Snap 2 batteries into position	Replace cover	Install headset	Install antenna	Install antenna adapter into "ANT" socket on front panel
	STEP	-	1A	18	10	10	1E	2	ဗ	3A

									0
							>		
T D C B F 4 B C D	Snap battery into clip Check area code and ID number	Loosen screws to release battery cover Snap battery into clip	Switch "RF-OFF-W" switch to "OFF"	Install batteries	Prepare detector ("RF" mode)	Connect antenna to socket		PREPARING PEWS FOR OPERATION	10.20.2
	4D 4E	4C 4D	4B	4A	4	38	STEP		

PREPARING PEWS FOR OPERATION	a by screwing threaded post stor	takes by id stakes into	r (wire mode)	IA-1D		cover to wire	etectors are peration	က
PREPA FOR 0	Install antenna by screwing detector onto threaded post on top of detector	Install ground stakes by screwing ground stakes into bottom of detector	Prepare receiver (wire mode)	Repeat steps 1A-1D	Install wire link	Secure battery cover to wire link	Receivers and detectors are now ready for operation	10.20.3
CTED	5 5	9	7	7A	78	7C	8	

0								
7								
10.21.1	INSTALLATION OF PEWS	ACTION	Install detectors	Dig shallow hole about 1 1/2-inches deep and slightly larger than detector	Push detector into hole so you firmly implant holding stakes into ground	Emplace detector in hole with arrow on top of detector parallel to road or trail	Pack soil firmly against sides of detector case	Do not cover top of detector with soil
		STEP	-	1A	18	10	1D	1
10				_				

INSTALLATION OF PEWS	
	9
If you are using wire mode for detectors, strip 1/2-inch of insulation from end of wire	
Insert each wire into terminal posts on detector	
Run wire to receiver location	
Camouflage detector & wire	
Turn detector on and set "RF-OFF-W" switch to "RF" for radio mode or to "W" for wire mode	
Record detector lengths	
Draw rough sketch	
	٦٩

STEP ACTION OF PEWS 2B Include easily identifiable natural and man-made features 2C Label features in STEP 2B that can be used to identify area of emplacement of detectors 2D Identify start point of emplacement of detectors 3 Include following items on sketch 3A Direction of likely enemy approach 3B Direction indicator (north arrow)		10.21.3	_	0
		INSTALLATION OF PEWS		
Ξ σ	ſΕΡ			
JI S	2B	Include easily identifiable natural and man-made features		
⊥ S	2C	Label features in STEP 2B that can be used to identify area of emplacement of detectors		
	2D	Identify start point of emplacement of detectors		
	က	Include following items on sketch		
	3A	Direction of likely enemy approach		
	3B	Direction indicator (north arrow)		

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10.21.4	
Lay detectors in sequence	4B
Record detectors as they are being laid	4A
Record detectors on sketch	4
Pace count per 100 m of soldier recording pace count	3G
Whether detectors are in "RF" or wire mode	3F
Date detectors are installed	3E
Area code of detectors	30
Unit designation (no higher than company)	ဒ္ဓင
ACTION	STEP
INSTALLATION OF PEWS	

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4		>					
10.21.5	INSTALLATION OF PEWS	ACTION	Determine direction from start point to first detector	Count paces to emplacement site	Record direction, pace count, and location of detector on sketch		
_		STEP	4C	4D	4E	Notes:	
10		. <u>-</u>					

PERFORM PRE-MISSION CHECKS ON PEWS		Perform receiver checks ("RF" mode)	Set "DSPL-TONE-OFF" switch to "TONE" position	Listen for tone in headset	Set "DSPL-TONE-OFF" switch to "DSPL" position	Observe display window	"L" will appear followed by ".8.8.8" and then will clear	Does "L" appear in display? If YES, go to STEP 1G. If NO, go to STEP 1H.
	STEP	-	1A	18	10	1D	1E	#

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10.22.2	PERFORM PRE-MISSION CHECKS ON PEWS	ACTION	Replace batteries	Batteries are low and should be replaced	After display has cleared, press "TEST-RESET" button and look for ".8.8.8" display	Perform detector checks ("RF" mode)	Set receiver to "DSPL"	Set receiver "AREA" switch to area number of detector you are testing	
_	<u> </u>	STEP	16	#	0	က	3A	3B	
10									

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PERFORM PRE-MISSION CHECKS ON PEWS ACTION Check all detectors for "RF"	mode of operation Place detector power switch to "RF"	Press detector "TEST" button and hold button down for 4 seconds	Observe display window of receiver for response	Receiver display must indicate detector's ID number in first 2 frames of display window and a "C" or "P" in last frame
STEP 4	44	4B	4C	40

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 for 4 seconds on detector and observe display window	ζ,
Set detector mode switch to "W"	7
Set test switch on wire link to "REC" position	9
Indicates that wire is broken or shorted	5G
Indicates that field wire is not broken or shorted	5F
Is test indicator light blinking? If YES, go to STEP 5G. if NO, go to STEP 5F.	5E
ACTION	STEP
PERFORM PRE-MISSION CHECKS ON PEWS	

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10.22.6	PERFORM PRE-MISSION CHECKS ON PEWS	ACTION	Receiver must indicate ID number of detector and "C" or "P"	Perform receiver memory check	Connect 2 working detectors to receiver by "RF" mode, wire link mode, or both	Set "DSPL-TONE-OFF" switch to "DSPL"	Press and release test button on both detectors	Observe display window	
		STEP	7B	8	8A	8B	8C	8D	
10									

10.22.8 NOTES	10											
NOTE	8	S								,	·	
	10.22	NOTE										

STEP ACTION CHECKS ON PEWS STEP ACTION 8E Detector numbers from the 2 detectors should appear alternately in the display window 9 Press "TEST-RESET" button on receiver while observing display 10 Display on detector should blank out Notes:	Г——Т.	_					10
STEP 8E Notes	PERFORM PRE-MISSION CHECKS ON PEWS		Detector numbers from the 2 detectors should appear alternately in the display window	Press "TEST-RESET" button on receiver while observing display	Display on detector should blank out		10.22.7
		STEP	8日	6	10	Notes	

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S	PAGE	11.1.1	11.2.1	11.3.1	11.4.1		11.5.1		11.6.1		11.7.1		11.8.1		11.9.1		11.10.1		
MINES/DEMO TABLE OF CONTENTS	ITEM	Install hasty protective minefield	Remove hasty protective minefield	Locating mine sites by terrain	analysis Breaching and clearing	minefields	Installing M16A2 antipersonnel	mine	Disarming M16A2	antipersonnel mine	Installing M18A1 antipersonnel	mine	Disarming M18A1	antipersonnel mine	Installing M18A1 mine with	tripwires	Disarming M18A1 mine with	tripwires	11.0.1

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_	S.	PAGE	11.11.1	11.12.1	11.13.1	11.14.1	11.15.1	11.16.1	11.17.1	11.18.1		11.19.1		11.20.1		11.21.1		11.22.1	11.23.1	11.24.1	
11.0.2	MINES/DEMO TABLE OF CONTENTS	ITEM	Installing M21 antitank mine	Disarming M21 antitank mine	Installing M49A1 tripflare	Arming M49A1 tripflare	Disarming M49A1 tripflare	Installing M1 pull firing device	Disarming M1 pull firing device	Installing M1A1 pressure firing	device	Disarming M1A1 pressure	firing device	Installing M3 pull-release firing	device	Disarming M3 pull-release	firing device	Installing M5 firing device	Disarming M5 firing device	Nonelectric firing system	
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\	S	PAGE	
11.0.4	MINES/DEMO TABLE OF CONTENTS	ITEM	
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INSTALL HASTY PROTECTIVE MINEFIELD	ACTION	Report intention to lay field	Get authorization to lay field	Recon to find best mine sites	On enemy avenues of approach	Under unit observation/fire	Report initiation of field	Place mines on avenues of approach	Do NOT arm mines yet	Use ONLY metallic mines
_	STEP	-	2	က	3A	38	4	2	5A	5B

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11.1.2	INSTALL HASTY PROTECTIVE MINEFIELD	ACTION	Do NOT boobytrap mines	Record field on DA 1355-1-R	Arm mines–from enemy side to friendly side	Report completion of field	Warn adjacent units	Always integrate mines with other defense plans	Retain DA 1355-1-R as long as unit and field stay in place	
		STEP	25	9	2	8	6	10	11	
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INSTALL HASTY PROTECTIVE MINEFIELD STEP ACTION 12 If transferred to another unit, gaining unit Cdr signs and dates DA 1355-1-R 13 If field abandoned, forward DA 1355-1-R to co Cdr Notes:					4
STEP 13 13 Notes	INSTALL HASTY PROTECTIVE MINEFIELD	ACTION If transferred to another unit, gaining unit Cdr signs and dates DA 1355-1-R	If field abandoned, forward DA 1355-1-R to co Cdr		11.1.3
		STEP 12	13	Notes	

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11.2.1	REMOVE HASTY PROTECTIVE MINEFIELD	ACTION	Do you have DA 1355-1-R for the field? If YES, go to STEP 2. If NO, treat as ENEMY field- use breaching techniques	Try to have same man who emplaced mine remove mine	Move to reference point	Move to stake B-1	Is stake B-1 in position? If YES, go to STEP 6. If NO, go to STEP 9.	Move from stake B-1 to first mine row B
		STEP	-	2	က	4	r.	9
11								

										
		>								
11.3.1	LOCATING MINE SITES BY TERRAIN ANALYSIS	ACTION	Use map to determine mine locations by considering	AA(s) to enemy positions	Intersections and turnouts	Wooded areas	Bridges and fords	Hilltops	Depressions and ditches	While viewing terrain from ground for possible mines and tripwires, consider STEPS 1A-1F plus the following
		STEP	-	1A	1B	10	1D	1E	11	2
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LOCATING MINE SITES BY TERRAIN ANALYSIS	ACTION	Helicopter landing sites	Signs of road repairs	Mud smears, grass, sticks, loose dirt, dung, or other material on roads	On shoulders of road at likely ambush sites	Tripwires near known or suspected antitank mines	Signs placed in trees, posts, or stakes	Holes filled with asphalt or other material	1139
	STEP	2A	28	2C	20	2E	2F	2G	
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11.3.3	LOCATING MINE SITES BY TERRAIN ANALYSIS	ACTION	Tunnels	Unusual or out-of-place material	Wilted plants or brush	Flags, equipment, or supplies	Areas where local civilians are not found	Locate possible mined and tripwired areas from the air by considering features in STEPS 1A-1F and features in STEPS 2A-2L	Report suspected locs to Cdr
		STEP	2Н	21	23	2 X	2L	က	4
7					- · -				

		BREACHING AND CLEARING MINEFIELDS	
	STEP	ACTION	
	-	Suppress enemy covering obstacles	· · · ·
	7	Obscure area with smoke	· · · · · · · · · · · · · · · · · · ·
	က	Secure near side	
	4	Reduce obstacle—blow or probe lane through	
	5	Secure the far side	
	9	Blow marked mines in place (time permitting)	
	7	Mark cleared lane	
	8	Move unit through obstacle	
7		11.4.1	-

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11.5.1	INSTALLING M16A2 ANTIPERSONNEL MINE	ACTION	Inspect mine	Look for cracks, dents, swells, or any other damage	Unscrew shipping plug from fuze well with M25 wrench	Inspect fuze well for debris	Turn mine upside down and tap gently to remove debris	Inspect M605 fuze for damage	Safety pins must move freely	Rubber gasket around fuze
		STEP	-	1A	18	10	10	15	Ħ	15
11										

	Tripwire installation	5
	NOTE: Go to STEP 6 for pressure installation	
	Cover and pack dirt around mine to proper fuze level	4B
	Place mine in hole	44
	Emplace mine	4
	Dig hole to proper depth for tripwire/pressure installation	က
	Screw fuze into fuze well and tighten with M25 wrench	2
	Tighten bushing adapter on fuze well	1H
7	ACTION	STEP
į	INSTALLING M16A2 ANTIPERSONNEL MINE	

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11.5.3	INSTALLING M16A2 ANTIPERSONNEL MINE	ACTION	Attach tripwires to 2 anchor stakes to form a wide "V", THEN to release pin	Allow enough slack in wires for fuze top to rotate	Arming mine fuze	Remove locking safety pin first (stop if you hear a click)	Remove interlocking safety pin (squeeze legs together)	Put camo on mine with care	Remove positive safety pin last to arm mine
		STEP	5A	5B	9	6A	6B	29	G 9
11									

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DISARMING M16A2 ANTIPERSONNEL MINE	ACTION	Replace positive safety pin	Replace interlocking safety pin	Replace locking safety pin	Cut slack tripwires at release pull ring	Remove mine from hole	Clean off top of mine	Remove fuze assembly	Replace shipping plug		
	STEP	-	2	က	4	5	9	7	æ	Notes:	

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11.7.1	INSTALLING M18A1 ANTIPERSONNEL MINE	ACTION	Inventory mine and accessories	Inspect mine for cracks, dents, swells, or any other damage	Test electrical circuit	Mate firing device, test set, and firing wire connector	Depress handle	Light must show in window	Return bail to safety position	Aiming the mine	
		STEP		2	က	34	3B	3C	3D	4	
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INSTALLING M18A1 ANTIPERSONNEL MINE ACTION With slit-type peep sight, aim mine at man's head standing 45 m from mine With knife edge-type sight, aim mine at man's feet standing 50 m from mine Priming mine Remove shipping plug- priming adapter from mine Insert blasting cap into priming adapter Screw into either cap well
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11.7.3	INSTALLING M18A1 ANTIPERSONNEL MINE	ACTION	Connect firing wire plug directly to firing device with safety on	Firing position is minimum of 16 m from rear of mine to your fighting position–100 m for others under cover	Recheck aim of mine	Camouflage mine	Move to covered position	Retest firing circuit	Firing the mine	
		STEP	9	7	8	6	10	11	12	
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11.8.1	DISARMING M18A1 ANTIPERSONNEL MINE	ACTION	Disconnect firing wire from firing device-replace covers	Put firing device in pocket	Remove priming adapter and blasting cap from cap well	Remove blasting cap from priming adapter	Reverse priming adapter and screw into cap well	Remove mine and reroll blasting cap and wire	Clean and repack mine and accessories in bandolier
		STEP	1	2	3	4	5	9	7
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INSTAL MINE WI Arming M1 with tripwin Emplace 20 m in fr space the space the space the Installing fi Attach ble with crimp		>								7
2 2 2A 2B 2B	INSTALLING M18A1 MINE WITH TRIPWIRES	ACTION	Arming M18A1 (claymore) with tripwires	Emplace and aim mine to cover target area	Emplace 2 tripwire stakes 20 m in front of mine and space them 10-20 m apart	Emplace 1 stake 1 m to the side of mine	Installing fire device	Remove protective cap	Attach blasting cap to base with crimpers	11.9.1
		STEP	-	1A	18	1C	2	2A	28	

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11.9.2	INSTALLING M18A1 MINE WITH TRIPWIRES	ACTION	Tape detonating cord to blasting cap on firing device	Attach firing device securely to one of the forward stakes	Attach tripwire to opposite forward stake	Attach tripwire to firing device	If using M1 firing device, attach tripwire to pull ring	If using M3 firing device, insert wire into hole in winch
		STEP	2C	2D	2E	3	3A	3B
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INSTALLING M18A1 MINE WITH TRIPWIRES	ACTION	To take up slack-turn knurled knob until you pull locking safety pin into safety pin hole	Secure detonating cord to stake near mine	Insert loose end of detonating cord through priming adapter into blasting cap and crimp	Insert cap into well and secure cap in well by screwing priming adapter into well	Recheck mine for proper aim	Remove safety pin from firing device & positive safety pin	11.9.3
	STEP	30	4	2	9	2	8	
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11.10.1	DISARMING M18A1 MINE WITH TRIPWIRES	ACTION	Inspect mine, tripwire, firing device, and detonating cord	To disarm mine	Cut detonating cord with M2 crimpers 6 inches from mine	Unscrew & remove shipping plug priming adapter	Remove blasting cap and detonating cord	Reverse shipping plug priming adapter and screw it back into detonator well	Put mine into carrying case
		STEP	-	2	2A	2B	2C	2D	2E
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	To disarm M3 firing device use "DISARMING M3 PULL- RELEASE FIRING DEVICE" job aid	ည
	Will you disarm M3 firing device? If YES, go to STEP 5. If NO, go to STEP 6.	4
	To disarm M1 firing device use "DISARMING M1 PULL FIRING DEVICE" job aid	ო
	Cut detonating cord with M2 crimpers 6 inches from blasting caps on firing device	2F
	ACTION	STEP
	MINE WITH TRIPWIRES	

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11.10.3	DISARMING M18A1 MINE WITH TRIPWIRES	ACTION	To blow M3 firing device in place	Cut cord and remove detonating cord	Lay out 10 m of commo string, wire, or twine to tripwire	Attach to tripwire	Move back to other end of string or wire and pull	To dispose of crimped blasting caps, either attach them to other demo or give them to your Cdr
		STEP	9	6 A	6B	29	6 D	7
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INSTALLING M21 ANTITANK MINE STEP ACTION I Inspect mine for cracks, swells dents, and any other damage linspect M607 fuze Inspect M607 fuze Bensure cotter pin of fuze pull ring assy is securely in place Dig hole 6-inches deep, and 10-12 inches in diameter Remove closing plug assy from bottom of mine using M26 wrench Remove any debris by turning mine upside down		>							7
3 2 4 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	INSTALLING M21 ANTITANK MINE		Inspect mine for cracks, swells dents, and any other damage	Inspect M607 fuze	Ensure cotter pin of fuze pull ring assy is securely in place	Dig hole 6-inches deep, and 10-12 inches in diameter	Remove closing plug assy from bottom of mine using M26 wrench	Remove any debris by turning mine upside down	11.11.1
		STEP	-	2	က	4	5	Q	

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11.11.2	INSTALLING M21 ANTITANK MINE	ACTION	Insert M120 booster (washer side toward the fuze)	Replace closing plug & tighten with M26 arming wrench	Remove shipping plug from top of mine	Check black powder bag in fuze cavity to ensure bag is not split open	Remove closure assembly from fuze	Match fuze thread to fuze cavity in mine
		STEP	2	8	6	10	11	11A
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INSTALLING M21 ANTITANK MINE	ACTION	Screw in fuze hand tight	Emplace mine and cover with earth, leaving fuze uncovered	Screw extension rod into threaded fuze well	Arming mine fuze	Squeeze cotter pins together	Use one hand on pull ring assy and hold fuze firmly with other hand	Remove cotter pin & carefully remove band and stop from neck of fuze	11.11.3
	STEP	118	12	13	14	14A	148	14C	

- 1	11.12.1	_	~
	DISARMING M21 ANTITANK MINE		
	ACTION	>	
၁ ह	Carefully attach band, stop, and pull ring onto fuze		
ق	Insert cotter pin and spread back ends		
표 1	Remove extension rod from fuze		
R in	Remove fuze from mine and install closure assy on fuze		
w M	Install shipping plug into fuze well		
تقفع	Remove closing plug from bottom of mine, then remove booster, and then reinstall closing plug	,	

<u>ر پر</u>							
INSTALLING M49A1 TRIPFLARE	Chose location for flare and tripwire where you think enemy will try to infiltrate	Position flare so it illuminates enemy and keeps friendly positions in the dark	Use pullpin method to install flare with tripwire	Mount bracket with 2 nails	Bracket must be vertical and 15-18 inches above ground	Mount flare by aligning lever with trigger pivot	11 13 1
INS STEP	1	7	3	4	5	9	

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11.13.2	INSTALLING M49A1 TRIPFLARE	ACTION	Carefully slide flare down into bracket until bottom lever is 1/16-inch above bracket	Flare base must be 1/2-inch below upper carriage bolt	Bottom end of lever must be 3/8-inch below bracket prongs and centered between bracket prongs	Clamp flare in bracket by tightening upper wingnut	
	N	STEP	2	8	6	10	Notes:
11							

FLARE		sthod	re to gid	ger, ht or	n one e lever e will	sembly	own, afety clip
ARMING M49A1 TRIPFLARE	ACTION	Arming with pullpin method	Fasten 1 end of tripwire to post, stake, or other rigid object 15 m from flare	When facing flare trigger, tripwire must be to right or left of flare	Press lever down with one hand (do NOT release lever when pressing or flare will function)	Remove safety clip assembly	While holding lever down, insert pullpin thru 2 safety clip
A	STEP	1	14	18	10	1D	п

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11.14.2	ARMING M49A1 TRIPFLARE	ACTION	Before releasing lever, ensure that pullpin will hold in safety clip holes	Carefully release lever	Ensure lever retains pullpin in safety clip holes	Pull loose end of tripwire tight	Fasten it to loop in pullpin	Check that tripwire is tight and tightened at both ends	Flare is prepared for firing
	1	STEP	15	16	H.	=	7	¥	7
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STEP ACTION 1 Misfiring of M49A1 1A Do not approach flare for 5 minutes 1B Remove flare carefully and forward to authorized personnel for disposal 1C If cover loading assemble or tighten, repeat STEP 1B 2 Disarming M49A1 2A Carefully depress lever against flare body 2B If you used pullpin as arming method, remove pullpin	ш	>								11
DIS 1 1 1B 1B 2 2 2A 2B	ARMING M49A1 TRIPFLAR	ACTION	Misfiring of M49A1	Do not approach flare for 5 minutes	Remove flare carefully and forward to authorized personnel for disposal	If cover loading assembly is loose, do not reassemble or tighten, repeat STEP 1B	Disarming M49A1	Carefully depress lever against flare body	If you used pullpin as arming method, remove pullpin	11.15.1
	SIQ	STEP	-	1A	18	10	2	2A	2B	

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11.15.2	DISARMING M49A1 TRIPFLARE	ACTION	Secure lever by inserting 1 end of safety clip through safety clip hole of cover loading assembly	Use only safety clip holes in cover loading assembly	Snap other end of safety clip into other safety clip hole	Detach wire from pullpin	Return flare to its original packaging	Inspect flare before you return it to storage	
	Sid	STEP	2C	2D	2E	က	4	C)	
7									-

	Notes:
 Remove locking safety pin first and positive pin last	5
 Anchor one end of tripwire to stake and fasten other end to pullring	4
 Attach firing device assembly to demolition charge	က
Using crimpers, attach nonelectric blasting cap to standard base	2
Remove protective cap	1
ACTION	STEP
INSTALLING M1 PULL FIRING DEVICE	

DISARMING M1 PULL FIRING DEVICE	ACTION	Insert nail, length of wire, or original safety pin into positive safety pin hole	Insert similar pin into locking safety pin hole	Cut tripwire	Separate firing device and explosive	Unscrew standard base	
	STEP	-	8	က	4	5	Notes:
	DISARMING M1 PULL FIRING DEVICE	DISARMING M1 PULL FIRING DEVICE STEP ACTION					

7	11.18.1	
	Remove positive safety pin last	7
	Remove safety clip first	9
	Attach firing device assembly to demolition charge	S.
	Screw in top of pressure cap	4
	Assemble 3-pronged pressure head and extension rod, if needed	က
	Crimp on nonelectric blasting cap	7
	Remove protective cap from base	-
>	ACTION	STEP
	INSTALLING M1A1 PRESSURE FIRING DEVICE	<u>а</u>

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11.19.1	DISARMING M1A1 PRESSURE FIRING DEVICE	ACTION	Insert original pin, nail, or length of wire into positive safety pin hole	Replace safety clip, if available	Unscrew base assembly from firing device	· · · · ·
		STEP	-	7	က	Notes:
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7	11 20 1	
	Remove locking safety pin first & positive pin last	9
	Using knurled knob, draw up tripwire until locking safety pin is pulled into wide portion of safety pin hole	ι,
	Attach one end of pullwire to an anchor, and place other end in hole in winch	4
	Attach firing device to anchored charge	က
	Attach nonelectric blasting cap to standard base w/ crimpers	2
<u> </u>	Remove protective cap	-
	ACTION	STEP
	INSTALLING M3 PULL- RELEASE FIRING DEVICE	

								
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11.21.1	DISARMING M3 PULL- RELEASE FIRING DEVICE	ACTION	M3 is dangerous to disarm, it should be blown in place	If device must be disarmed, follow STEPS 3-5	Insert original pin, nail, or length of wire in positive safety pin hole	Insert original locking pin or nail in locking pin hole	Disassemble tripwire, firing device, and explosive	
		STEP	1	7	က	4	5	Notes:
7								

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	11.22.1	
	Attach nonelectric blasting cap to base with crimpers	9
	Remove protective cap from base	5
	Holding release plate down, replace locking safety pin with length of 16- or 18-gage wire, bent slightly to prevent it from dropping out	4
	Remove small cotter pin from safety pin	က
	Bend 10-gage wire slightly to prevent it from dropping out	7
	Insert length of 10-gage wire into interceptor hole	-
>	ACTION	STEP
兴	INSTALLING M5 FIRING DEVICE	INS

Щ	7	>							
	INSTALLING M5 FIRING DEVICE	ACTION	Secure firing device to explosive device	Emplace charge and firing assembly	Place at least 5 pounds of weight on the firing device release plate	Remove wire from safety pin hole	Remove wire from interceptor hole	•	
=	22	STEP	7	8	6	10	11	Notes:	

	DISARMING M5 FIRING DEVICE	m
- 1	ACTION	
등등	Insert length of heavy gage wire into interceptor hole	
는 유 보	Bend wire to prevent it from dropping out	
ا کر Sis کا	Proceed carefully, as slightest disturbance of restraining weight may detonate mine	
:: E	Disassemble firing device and mine	
	11 00 1	7
Ì	11.23.1	_

2	NONELECTRIC FIRING SYSTEM	M
STEP	ACTION	>
က	Cut fuse to proper length	
4	Pass end of fuse through priming adapter	
ည	Attaching blasting cap to fuse	
5A	Inspect open end of cap	
5B	Remove debris from cap by shakng gently or by tapping hand with cap against other hand	
2C	Hold fuse vertically with square cut end up	
5D	Slip cap down over fuse so cap and fuse are in contact or they may misfire	
$\Big]_{ullet}$	0 70 77	7

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4	M	>]
11.24.3	NONELECTRIC FIRING SYSTEM	ACTION	Turn cap out and away from body and crimp cap at point 1/8 to 1/4-inch from open end	Attach M60 fuse igniter	Unscrew fuse holder cap	Press shipping plug into igniter	Rotate and remove plug	Insert fuse in hole	Tighten cap	Pull pin to detonate charge	
	NO	STEP	5E	9	6A	6B	၁၅	Q9	99	7	
7											_

1	NONELECTRIC PRIMING OF DEMO BLOCK	
STEP		>
†	Prime demo block with a threaded cap well and priming adapter	
1A	Inspect cap well for debris	
£	Insert cap with fuse attached into cap well	
5	Screw adapter into cap well	
8	Prime demo block with a threaded cap well and no priming adapter	
2A	Inspect cap well for debris	
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	11.25.1	_
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NONELECTRIC PRIMING OF DEMO BLOCK OF DEMO BLOCK Wrap and tie string tightly around block, leave 6 inches on each end attached into cap well Tie loose string around fuse to prevent cap separating from block 3 Prime demo block without threaded cap well and without priming adapter 3A Make hole with M2 crimpers 3B Repeat STEPS 2A-2D	_								
			>						
3A 3B 3B	11.25.2	NONELECTRIC PRIMING OF DEMO BLOCK		Wrap and tie string tightly around block, leave 6 inches on each end	Insert blasting cap with fuse attached into cap well	Tie loose string around fuse to prevent cap separating from block	Prime demo block without threaded cap well and without priming adapter	Make hole with M2 crimpers	Repeat STEPS 2A-2D
\square			STEP	2B	2C	2D	က	3A	38

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CLEAR NONELECTRIC MISFIRES	ACTION	If possible, misfire should be cleared by soldier(s) who place the charge	Wait 30 minutes after misfire before moving to charge	Detonate 1-pound charge at side of untamped misfired charge without moving or disturbing it	Dig to within 1 foot of a tamped misfired charge	Detonate 2-pound charge on top of a tamped misfired charge	
CLE	STEP	-	2	ო	4	5	

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11.27.1	ELECTRIC FIRING SYSTEM	ACTION	Test firing wire with M51 test set or galvanometer	Check test set	Separate firing wire conductors at both ends	Touch posts with both wires from one end	Twist wires together at open end and retest wires	Lay out firing wire from charges to FIRING position	Test electric blasting cap with M51 blasting cap test set or galvanometer
	Ш	STEP	1	1A	18	10	1D	2	က
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ELECTRIC FIRING SYSTEM	ACTION	Remove shunt from lead wires of electric blasting cap	Touch cap lead wires to posts	After testing cap, twist free wire ends together	Move to firing point and test entire circuit with M51 test set or galvanometer	Test blasting machine by depressing handle	On order, connect lead wires to 2 blasting machine posts	Detonate charge-depress handle of blasting machine	11.27.2
Ш	STEP	3A	3B	4	5	9	7	8	

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11.28.1	ELECTRIC PRIMING OF DEMO BLOCK	ACTION	Priming demo block with threaded cap well and priming adapter	Inspect cap well for debris	Untwist free ends of cap lead wire and fasten to firing wire with Western Union Pigtail Splice	Test blasting cap and firing wire with galvanometer or M51 tester	Pass cap lead wires through slot of adapter	Pull cap into place in adapter
		STEP	1	1A	18	10	1D	꾸
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ELECTRIC PRIMING OF DEMO BLOCK	ACTION	Insert cap into cap well of block and screw adapter into place	Priming demo block with threaded cap well with no priming adapter	Inspect cap well for debris	Repeat STEPS 1B-1D	Insert electric cap into cap	Tie lead wires around block with two half hitches, allow slack in wires between cap and tie	11.28.2
	STEP	上	6	2A	2B	2C	2D	
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11.28.3	ELECTRIC PRIMING OF DEMO BLOCK	ACTION	Priming demo block without threaded cap well	Make hole in end of demo block with M2 cap crimper	Untwist free ends of cap lead wire	Fasten them to firing wire with Western Union Pigtail Splice	Test blasting cap and firing wire with galvanometer or M51 test set	Repeat STEPS 2C-2D
		STEP	က	3A	3B	30	3D	3E
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CLEAR ELECTRIC MISFIRES	ACTION	Is system below ground? If YES, go to STEP 2. If NO, go to STEP 3.	Wait 30 minutes before checking to see if firing system is dual primed	If system is above ground and not dual primed, check ASAP	Check firing wire connections to blasting machine	Make 2-3 more attempts to fire system	Disconnect firing wire from blasting machine and shunt (twist together) wires
วี	STEP	-	2	3	4	5	9

L L	11.29.2		-
STEP	CLEAR ELECTRIC MISFIRES P ACTION	>	
7	Check entire system for breaks and short circuits		
ω	If fault is below ground, remove tamp material (soil) carefully from borehole to within 1 foot of misfired charge		
6	Disconnect blasting cap wire from circuit		
10	Dig to within 1 foot of misfired charge		
1	Place 2-pound primed charge next to misfired charge		
12	Connect new charge to firing system and initiate detonation		

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11.30.2	DETONATING CORD FIRING SYSTEMS	ACTION	Ensure that 1/2-inch of explosive is on all sides of knot and a minimum of 1 inch of explosive on end of knot	Priming dynamite	Attach nonelectric blasting cap to end of detonating cord	Follow any of the methods for nonelectric priming	Priming dynamite by lacing detonating cord through it	Punch four equally spaced holes through dynamite cartridge
		STEP	2C	က	3A	38	4	4A
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DETONATING CORD FIRING SYSTEMS	ACTION	Lace detonating cord through dynamite	Priming 40-pound cratering charge	Pass end of detonating cord through long tunnel on side of can	Tie an overhand knot on the portion passed through, at least 6 inches from end	Priming shaped charges	Attach nonelectric blasting cap to end of detonating cord
	STEP	4B	5	5A	5B	9	6A

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11.30.4	DETONATING CORD FIRING SYSTEMS	ACTION	Follow standard nonelectric or electric priming methods	Attaching nonelectric or electric firing system to detonating cord	Construct nonelectric or electric firing system	Splice assembly to detonating cord with string, M1 clip, or adhesive tape	Construct ring main	Use when making detonating cord firing systems with more than one block of explosive
		STEP	6B	2	7A	7B	8	8A
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DETONATING CORD FIRING SYSTEMS ACTION Form a ring main	Close ring main by tying girth hitch with an extra turn tail to inside, or use a detonating cord clip	Run branch lines from explosives to ring main using girth hitch with one extra turn	Leave minimum of 6 inches on running end	Branch line must run 90 degrees from direction from which blast is coming	
STEP 8B	8C	8D	8E	8F	

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11.30.6	DETONATING CORD FIRING SYSTEMS	ACTION	Attach electric or nonelectric firing system to ring main at running end of detonating cord	Leave a 6-inch length of ring main free beyond the splice	In actual combat systems, use detonating cord firing system	Tape a 3-foot section of detonating cord to blasting cap	Splice other end to ring main with square knot or M1 detonating cord and detonate charge
		STEP	8G	8H	6	9A	98
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	⁻ S	PAGE	12.1.1	12.2.1	12.3.1	12.4.1	12.5.1		12.6.1	12.7.1	12.8.1		12.9.1		12.10.1		12.11.1		12.12.1]	
Can	TABLE OF CONTENTS	ITEM	NBC-1 report	NBC-4 report	Supervise radiation monitoring	Using a dosimeter	Collect/report total radiation	dose	Preparation for NBC attack	EMP protective measures	Mark radiologically	contaminated area	Mark bio/chem contaminated	area	Unmasking with chemical	agent detector kit	Unmasking without chemical	agent detector kit	Operating an IM-174/PD	radiacmeter		12.0.1
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•	S	PAGE	12.13.1	12.14.1	12.15.1	12.16.1	
12.0.2	NBC TABLE OF CONTENTS	ITEM	Installing batteries in an	Operating an IM-174A/PD	radiacmeter Installing batteries in an	Using a PP-1578/PD dosimeter charger	
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	NBC-1 REPORT	Position of observer (UTM coord)	Direction of attack from observer (Degrees) (Mils)	Date/time of detonation/*area attacked (DTG)	Location of attack/*area attacked (Actual) (Estimated) (UTM coord)	Type of burst*agent (Air) (Surface)	12.1.1
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ABC-4 REPORT LINE ITEM Q Location of reading (UTM coord) 1. 2. 3. 4. 1. 2. 3. 4. 2. 3. 4. 5. 3. 4. 7. 5. 6. 7. 7. 8. 9. 9. 9. 1. 2. 3. 4. 4. 5. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.	2						
B S S	12.2.1	NBC-4 REPORT	ITEM	Location of reading (UTM coord) 1. 2. 3.	Dose-rate (rad/hr) 1. 2. 3.	Date/time of reading (DTG) 1. 2. 3.	
			LINE		Œ	ဟ	
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SUPERVISE RADIATION MONITORING 1 List grid coordinates of central point in area 2 Tell IM-174 operator to take readings from central point every hour 3 Check that operator uses IM-174 correctly 4 Tell operator to report radiation readings to you immediately 5 Report radiation readings using NBC-4 report 6 Take readings continuously when you 12.3.1									2
SUPERVISE RADIATION MONITORING STEP ACTION 1 List grid coordinates of central point in area 2 Tell IM-174 operator to take readings from central point every hour 3 Check that operator uses IM-174 correctly 4 Tell operator to report radiation readings to you immediately 5 Report radiation readings using NBC-4 report 6 Take readings continuously when you 12.3.1		>							7
STEP - 2 8 9 0	SUPERVISE RADIATION MONITORING	ACTION	List grid coordinates of central point in area	Tell IM-174 operator to take readings from central point every hour	Check that operator uses IM-174 correctly	Tell operator to report radiation readings to you immediately	Report radiation readings using NBC-4 report	Take readings continuously when you	12.3.1
		STEP	-	7	က	4	5	9	

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12.3.2	SUPERVISE RADIATION MONITORING	ACTION	Read 1 or more rad/hr	Receive fallout warning	Are moving to a different loc	Receive orders	Check every hour when	Reading drops below 1 rad/hr	Receive orders	Readings/DTG		
		STEP	6A	6B	၁၅	Θ9	2	7A	7.8	Read		
12												

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USING A DOSIMETER	ACTION	Take dosimeter out of your pocket	Hold viewing end of dosimeter up to your eye	Point it toward a light or the sky, but not directly at the sun	Point where vertical hairline crosses scale is total amount of radiation you received	List total amount of radiation you received	Report the number of rads or millirads in STEP 5 to your Cdr
	STEP	-	2	က	4	5	9

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12.5.1	COLLECT/REPORT TOTAL RADIATION DOSE	ACTION	Do all dosimeters you will use read 0?	If YES, go to STEP 3. If NO, go to STEP 2.	Turn it in for recharging	Select soldiers to wear dosimeters who perform duties within unit's area	Insure that soldiers report readings to you accurately	Collect readings from soldiers at the same time, at least once daily	
		STEP	-		2	က	4	5	
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COLLECT/REPORT TOTAL RADIATION DOSE	ACTION	Add together readings by all soldiers wearing dosimeters	List number of readings you receive	Divide STEP 6 by STEP 7	Round off STEP 8 to the nearest 10	Report reading in STEP 9 to your Cdr	••	
	STEP	9	7	8	6	10	Notes:	

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12.6.1	PREPARATION FOR NBC ATTACK	ACTION	Cover equipment and supplies with plastic sheets	Cover exposed weapons and ammo	Keep instruments in containers when not in use	Park all vehicles so air conditioners are away from prevailing winds	Cover unsheltered commo equipment	Put overhead cover on field latrines	Only open food when eating it
	PRE	STEP	1	2	3	4	5	9	7
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12.7.1	EMP PROTECTIVE MEASURES	ACTION	Disconnnect antenna(s)	Use highest freq possible	Disconnect everything from spare equipment	Keep cable and wire lengths short	Use remote sets only when needed	Bury cables and wires at least 18 inches	Do not leave connected cable or wire on a reel	
	EM	STEP	-	2	က	4	5	9	^	
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12.8.1	MARK RADIOLOGICALLY CONTAMINATED AREA	ACTION	Locate/identify contaminated area	Select marker labeled "ATOM"	Print information so word "ATOM" faces towards you in an upright position	Print dose rate in centigrays per hour (rads per hour)	Print date and time (state if local or zulu time) of detonation	If you do not know the date and time of detonation, print "UNKNOWN"
	1	STEP	1	2	က	4	5	9
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MARK RADIOLOGICALLY CONTAMINATED AREA		Position markers so that information faces away from contaminated area	Place markers at locations where dose rate measures 1 centigray per hour (rad per hour) or more	Attach markers to objects so others can easily see them from all routes through the contaminated area	Place each marker so that others can see it from the previous marker	
	STEP	_	ω	်	10	-

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12.9.1	MARK BIO/CHEM CONTAMINATED AREA	ACTION	Locate/identify contaminated area	Is contamination biological? If YES, go to STEP 3. If NO, go to STEP 4.	Select marker labeled "BIO" for biological contamination	Select marker labeled "GAS" for chemical contamination	Print information on marker so word on marker faces towards you in upright position	Print type of agent detected, if unknown, print "UNKNOWN"	
•		STEP	-	2	က	4	2	9	
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STEP ACTION CONTAMINATED AREA CONTAMINATED AREA ACTION 7 Print date of detection below type of agent time) of detection below date time) of detection below date of detection below date ontaminated area 10 Attach markers to objects so others can easily see them from all routes through contaminated area 11 Place each marker so that it can be seen from the previous marker								7
STEP 7 7 10 10 11 11								<u> </u>
STEP 9 9 11 11	MARK BIO/CHEM CONTAMINATED AREA	ACTION	Print date of detection below type of agent	Print time (state if local or zulu time) of detection below date	Position markers so information faces away from contaminated area	Attach markers to objects so others can easily see them from all routes through contaminated area	Place each marker so that it can be seen from the previous marker	12.9.2
		STEP	7	8	6	10	=	12

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12.10.1	UNMASKING WITH CHEMICAL AGENT DETECTOR KIT	ACTION	Is chemical agent detected? If YES, do not unmask. If NO, go to STEP 2.	Have 2-3 soldiers unmask in the shade for 5 minutes, then remask for 10 minutes	Check soldiers for chemical symptoms	If no symptoms, tell other soldiers to unmask	Be alert for chemical symptoms	
	S	STEP	-	0	က	4	ស	Notes:
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UNMASKING WITHOUT CHEMICAL AGENT DETECTOR KIT	ACTION	Have 2-3 soldiers hold their breath and break the seal of their masks for 15 seconds with eyes open	Have soldiers reseal, clear, and check masks in the shade for 10 minutes	Check soldiers for chemical symptoms	If no symptoms, have soldiers break seal of mask and take 2-3 breaths	Repeat STEPS 2-3	
NNM,	STEP	-	2	င	4	S.	

UNMASKING WITHOUT CHEMICAL AGENT DETECTOR KIT STEP ACTION 6 If no symptoms, have soldiers unmask for 10 minutes and remask for 10 minutes in the shade 7 Check soldiers for chemical symptoms 8 If no symptoms, tell all soldiers to unmask 9 Be alert for chemical symptoms Notes:	7		<u></u>					-
UNMASKING WITHOUT CHEMICAGENT DETECTOR KIT STEP ACTION If no symptoms, have soldiers unmask for 5 minutes and remask for 10 minutes in the shade 7 Check soldiers for chemical symptoms 8 If no symptoms, tell all soldiers to unmask 9 Be alert for chemical symptoms Notes:	•	SAL	2					
UNM. STEP 6 9 9 Notes	12.11.2	ASKING WITHOUT CHEMI AGENT DETECTOR KIT	L	If no symptoms, have soldiers unmask for 5 minutes and remask for 10 minutes in the shade	Check soldiers for chemical symptoms	If no symptoms, tell all soldiers to unmask	Be alert for chemical symptoms	
	12	NNO	STEP	ဖ	7	8	6	Notes

STEP ACTION 1 Open snaps and snap top of carrying case on fastener 2 Turn "SET" control clockwise and let radiacmeter warm up for 2-20 minutes 3 Hold function switch to "ZERO" 4 Adjust "SET" control until meter shows "0" 5 Release switch so pointer falls back to "0" 6 Set function switch to "ELEC CAL"	•	>							7
6 5 4 4 5 6 6 5 5 5 5 5 5 5 5 5 5 5 5 5	OPERATING AN IM-174/PD RADIACMETER	ACTION	Open snaps and snap top of carrying case on fastener	Turn "SET" control clockwise and let radiacmeter warm up for 2-20 minutes	Hold function switch to 'ZERO'	Adjust "SET" control until meter shows "0"	Release switch so pointer falls back to "0"	Set function switch to "ELEC CAL"	12.12.1
		STEP	•	2	က	4	5	9	

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12.12.2	OPERATING AN IM-174/PD RADIACMETER	ACTION	Does pointer show "500"? If YES, go to STEP 10. If NO, go to STEP 8.	Take off cap from "CALIB" control on front panel	Turn control bottom until pointer shows "500" and replace cap on button	Hold function switch to "LINEARITY"	Is pointer within red mark? If YES, go to STEP 12. If NO, change batteries and go to STEP 1.	
		STEP	2	ω	6	10	11	
12								

12.12.3	
Report your reading	19
Resnap carrying case	18
Turn "SET" control to "OFF"	17
List grid coordinates of reading location	16
List highest reading you obtain	15
Read meter face up at waist level	14
Take readings while turning in a circle	13
Set function switch to "READ"	12
ACTION	STEP
OPERATING AN IM-174/PD RADIACMETER	
	PERATING AN IM-174/PD RADIACMETER ACTION Set function switch to "READ" Take readings while turning in a circle Read meter face up at waist level List highest reading you obtain List grid coordinates of reading location Turn "SET" control to "OFF" Resnap carrying case Resnap carrying case Report your reading

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12.13.1	INSTALLING BATTERIES IN AN IM-174/PD RADIACMETER	ACTION	Loosen thumbscrew and remove battery box from radiacmeter	Press down on lock plate, turn it to left and lift off	Lift out retaining plate	Put in batteries matching positive (+) and negative (-) marks	Replace retaining plate and make sure locating pin on battery box goes in locating hole on retaining plate	Replace lock plate
	= \{\bar{4}	STEP	-	8	က	4	2	9
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ISTALLING BATTERIES IN ACTION Press down on lock plate turning right until it locks Wrap cable around battery box Hand tighten thumbscrew Put radiacmeter back into carrying case							<u> </u>
INSTALLING BAT AN IM-174/PD RADI STEP ACTION 7 Press down on lock turning right until it lebox 9 Wrap cable around box 10 Put radiacmeter bac carrying case Notes:	TERIES IN ACMETER	r plate locks	battery	screw	ck into		
AN A	ISTALLING BATI IM-174/PD RADI ACTION	Press down on lock turning right until it I	Wrap cable around box	Hand tighten thumb	Put radiacmeter bac carrying case		C C T
	IN AN STEP	7	8	6	10	Notes:	

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12.14.1	OPERATING AN IM-174A/PD RADIACMETER	ACTION	Open snaps and push back top of carrying case	Snap top of carrying case on fastener at rear	Let radiacmeter warm up for 2 minutes (20 if you can)	Turn zero control clockwise for warm up	Hold function switch to 'ZERO"	Adjust zero control until meter shows "0"	Release switch while watching pointer
	0	STEP	-	2	အ	4	5	5A	5B
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8 6		
OPERATING AN IM-174/APD RADIACMETER P ACTION Pointer must swing between "5" and "10", then to "0" Press and hold function	switch to "CHECK" Does pointer fall within "CHECK" band on scale? If YES, go to STEP 9. If NO, go to STEP 8.	Replace batteries and repeat STEPS 3–5 Release function switch, pointer must fall to "0"
STEP 5C	7	ထ တ

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		>								
12.14.3	OPERATING AN IM-174A/PD RADIACMETER	ACTION	Take readings while turning in a circle	Read meter face up at waist level	List highest reading you obtain	List grid coordinates of reading location	Turn zero control to "OFF"	Resnap carrying case	Report your reading	
-1	0	STEP	10	11	12	13	14	15	16	
12										

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INSTALLING BATTERIES IN AN IM-174A/PD RADIACMETER	ACTION	Unscrew battery cover on bottom of radiacmeter	Lift clips and slide batteries into place	Match up positive (+) and negative (-) marks	Put battery cover back onto radiacmeter, do not pinch wires	Tighten battery cover	Put radiacmeter into carrying case	
AN	STEP	-	2	က	4	5	9	
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_ လ	PAGE	13.1.1		13.2.1	13.3.1	13.4.1	13.5.1		13.6.1		13.7.1	13.8.1		13.9.1		13.10.1		13.11.1	13.12.1		
LAND NAVIGATION TABLE OF CONTENTS	ITEM	Orient map by map-terrain	association	Orient map using a compass	Orient map using a protractor	Locating points by intersection	Locating unknown point by	resection	Locating point by straightedge	method	Find target by grid coordinates	Computing current G-M angle	(degrees)	Computing current G-M angle	(mils)	Computing back azimuth	(degrees)	Computing back azimuth (mils)	Computing azimuth with a	protractor	13.0.1
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	S	PAGE	13.13.1	13.14.1	13.15.1	13.16.1	13.17.1	13.18.1	13.19.1	13.20.1	7 70 0	13.61	13.22.1	
13.0.2	LAND NAVIGATION TABLE OF CONTENTS	ITEM	Converting grid to magnetic	Converting magnetic to grid	azimuth Distance factor in dead	reckoning Navigating between two points	on the ground	Navigating with steering marks	Navigating without steering	Mounted navigation by terrain	association	Direction finding Without a	Route planning guide	
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	,	ORIENT MAP BY		
1	MA	MAP-TERRAIN ASSOCIATION	z	
S	STEP	ACTION	>	
	1	Place map horizontally		
	2	Look at map and ground		
	က	Find two features common to both map and ground		
L	4	Rotate the map until map features and ground features are in same position		
<u> </u>	လ	You have oriented your map when north and south correspond to north and south on ground		
	Notes:			
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13.2.1	ORIENT MAP USING A COMPASS	ACTION	Place map horizontally and place compass parallel to a north-south line pointing toward top of map	Point compass north arrow toward magnetic north arrow	List G-M angle	Is G-M angle easterly? If YES, go to STEP 5. If NO, go to STEP 6.	Compass reading should equal 360 minus STEP 4.	Compass reading must equal G-M angle (STEP 4)	
~	ORII	STEP	-	0	င	4	2	9	
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ORIENT MAP USING A PROTRACTOR	ACTION	Draw a magnetic north line on map from any north-south and east-west grid line intersection	Align compass straightedge along line you drew in STEP 1	Rotate map and compass together until north arrow falls below fixed black index line on compass	You have now oriented your map to the ground		
	STEP	-	8	ო	4	Notes:	

LOCATING POINTS BY INTERSECTION STEP ACTION 1 Determine G-M angle 2 Locate and mark your psn on map 3 Measure magnetic azimuth to an unknown point 4 Convert magnetic azimuth to grid azimuth 5 Is G-M angle easterly? 11 YES, go to STEP 6. 12 Add G-M angle (STEP 1) to magnetic azimuth for easterly angle 4 Add G-M angle (STEP 1) to magnetic azimuth for easterly angle 5 Add G-M angle (STEP 1) to magnetic azimuth for easterly angle	<u>m</u>									
13 3 3 3 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	13.4.1	LOCATING POINTS BY INTERSECTION		Determine G-M angle	Locate and mark your psn on map	Measure magnetic azimuth to an unknown point	Convert magnetic azimuth to grid azimuth	Is G-M angle easterly? If YES, go to STEP 6. If NO, go to STEP 7.	Add G–M angle (STEP 1) to magnetic azimuth for easterly angle	
			STEP	1	2	က	4	5	ဖ	
- · · · · · · · · · · · · · · · · · · ·	13									

STEP ACTION T Subtract G-M angle (STEP 1) from magnetic azimuth for westerly angle Place protractor on map with 0-degree indicator pointing north and index point in center Put tickmark on number of degrees to plot and draw line from your psn on grid azimuth to unknown point in sight Where lines cross is location of unknown point in sight 13.4.2					13
STEP 7 9 9 9 11 11	LOCATING POINTS BY INTERSECTION ACTION Subtract G-M angle (STEP 1) from magnetic azimuth for westerly angle + = = = = = = = = = = = = = = = = = =	Place protractor on map with 0-degree indicator pointing north and index point in center Put tickmark on number of degrees to plot and draw line from your psn on grid azimuth to unknown point	Repeat STEPS 3-10 for 2nd position keeping unknown point in sight	Where lines cross is location of unknown point	
	STEP 7	ထ တ	5	7	

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13.5.1	LOCATING UNKNOWN POINT BY RESECTION	ACTION	Determine G-M angle	Locate 2 known positions on ground and mark on map	Measure magnetic azimuth to one of known locations	Convert magnetic azimuth to grid azimuth	Is G-M angle easterly? If YES, go to STEP 6. If NO, go to STEP 7.	Add G-M angle (STEP 1) to magnetic azimuth for easterly angle	
~	7	STEP	1	2	3	4	5	9	
13									

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LOCATING UNKNOWN POINT BY RESECTION	ACTION	Subtract G-M angle (STEP 1) from magnetic azimuth for westerly angle	Place protractor on map with 0-degree indicator pointing north and index point in center	Put tickmark on number of degrees to plot	Remove protractor and draw line from back azimuth position in direction of unknown position	Repeat STEPS 3-11 for 2nd and 3rd positions that you know	13.5.2
707	STEP	7	ထ	6	10	11	
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13.6.1	LOCATING POINT BY STRAIGHTEDGE METHOD	ACTION	Locate your position on map	Lay straightedge on map with one end at your position as pivot point	Rotate straightedge until you sight unknown point along straightedge	Draw a line along straightedge	Repeat STEPS 1-4 for 2 other positions keeping unknown point in sight	Where lines cross is location of unknown point	Read coordinates of point where lines cross
	B	STEP	-	2	3	4	ည	9	7
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	FIND TARGET BY GRID COORDINATES	STEP ACTION	1 Orient map	2 Identify target with terrain feature on ground	3 Locate terrain feature on map	4 Plot target on map in relation to terrain feature on ground	5 Compute grid coordinates of target point on map	6 List grid coordinates	Notes:	13.7.1
		071							<u>. </u>	 13

COMPUTING CURRENT	G-M ANGLE (DEGREES)	List current year	Year map was made	Subtract STEP 2 from STEP	List annual magnetic change in degrees	Multiply STEP 4 by STEP 3	List G-M angle for year map was made	Is annual change easterly? If YES, go to STEP 8. If NO, go to STEP 9.
Ŭ	-9 -0		7 Ye	3 Su	4 Lis	- Wu	6 List G made	7 IS 8

	13	13.8.2	13
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		Edition Series Sheet G-M Angle	
		10 Place G-M angle for each map sheet you use below:	
		9 Add STEP 5 to STEP 6 to compute westerly G-M angle + =	
		compute easterly G-M angle	
		STEP ACTION 8 Subtract STEP 5 from STEP 6 to	•
		COMPUTING CURRENT G-M ANGLE (DEGREES)	

	CURRENT E (MILS)	N		nade	2 from STEP 1 =	netic change in	by STEP 3	List G–M angle for year map was made	e easterly? EP 8. P 9.	
13.9.1	COMPUTING CURRENT G-M ANGLE (MILS)	ACTION	List current year	Year map was made	Subtract STEP 2 from STEP	List annual magnetic change in mils	Multiply STEP 4 by STEP 3	List G–M angle f made	Is annual change easterly? If YES, go to STEP 8. If NO, go to STEP 9.	
7		STEP	1	2	င	4	5	9	7	

 13	13.9.2	13
		
 	Edition Series Sheet G-M Angle	
	Dlace G-M angle for each map sheet you use below:	10
	Add STEP 5 to STEP 6 to compute westerly G-M angle + + =	6
	1	
	Subtract STEP 5 from STEP 6 to compute easterly G-M angle	8
	EP ACTION	STEP
 _	COMPUTING CURRENT G-M ANGLE (MILS)	

က									
13.10.1	COMPUTING BACK AZIMUTH (DEGREES)	ACTION	List azimuth	Is azimuth less than 180 degrees? If YES, go to STEP 3. If NO, go to STEP 4.	Add 180 degrees to azimuth in STEP 1.	Subtract 180 degrees from azimuth computed in STEP 1. - 180 =	List back azimuth		
••		STEP	-	2	3	4	5	Notes:	
13									

STEP ACTION 1 List azimuth 2 Is azimuth less than 3200 mils? If YES, go to STEP 3. If NO, go to STEP 4. 3 Add 3200 mils to azimuth computed in STEP 1. + 3200 = Computed in STEP 1. - 3200 = 5 List back azimuth Notes:
3 3 2 1 1 1 Notes

COMPUTING AZIMUTH WITH A PROTRACTOR STEP ACTION 1 Draw straight line between the 2 points 2 Center protractor on azimuth line where it crosses any grid line edge of protractor 4 Draw line longer if you need to line where it crosses grid line 5 Recenter protractor on azimuth line where it crosses grid line 6 Align protractor index line with grid line	<u>ლ</u>							,		1
6 5 4 2 2 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1	13.12.1	COMPUTING AZIMUTH WITH A PROTRACTOR		Draw straight line between the 2 points	Center protractor on azimuth line where it crosses any grid line	Make sure line extends past outer edge of protractor	Draw line longer if you need to	Recenter protractor on azimuth line where it crosses grid line	Align protractor index line with grid line	
	~		STEP	1	2	3	4	2	9	

STEP 18 gi 7A If Y pro Sou TB IF I	ACTION
	Coull Hugo drong onil bit
	Is grid lille a norm-south lille:
	If YES, align north-south protractor index line with north- south grid line.
	IF NO, align east-west protractor index line with east-west grid line.
8 Rea deg	Read azimuth where lines crosses degree/mil scale
9 List	List degrees/mils from the scale
Notes:	

က										
13.13.1	CONVERTING GRID TO MAGNETIC AZIMUTH	ACTION	List grid azimuth reading	Aim compass at target	List compass reading	List G-M angle	Is G-M angle easterly? If YES, go to STEP 6. If NO, go to STEP 7.	Subtract STEP 4 from STEP 1 to compute easterly azimuth.	Add STEP 4 to STEP 1 to compute westerly azimuth	
		STEP	-	2	က	4	က	9	7	
13										

								13
CONVERTING MAGNETIC TO GRID AZIMUTH	ACTION	Aim compass at target	List compass reading	List G-M angle	Is G-M angle easterly? If YES, go to STEP 5. If NO, go to STEP 6.	Add STEP 3 to STEP 2 to compute easterly azimuth.	Subtract STEP 3 from STEP 2 to compute westerly azimuth	13.14.1
Ö	STEP	—	2	3	4	2	9	
								13,

DISTANCE FACTOR IN DEAD RECKONING STEP ACTION 1 Determine map distance to travel 2 To compute 20% of STEP 1, multiply STEP 1 by .2 X .2 = X .3 Add STEP 1 to STEP 2 to convert map distance to ground distance to ground distance distance to ground distance distance
STEP 1 4 4 A Motes

0	>							
NAVIGATING BETWEEN TWO POINTS ON THE GROUND	ACTION	Find start/finish points on map	Determine grid azimuth between start and finish points and any intermediate points	Convert grid azimuth to magnetic azimuth	Determine distance between start and finish	Make thorough map recon of area between start and finish	Select check points on route	Move from start through each point until finished
TW	STEP	-	2	က	4	5	9	7

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	/IGATION DON'Ts	DON'T	Make up the route on the ground as you go	Rely on your sense of direction	Rely on your sense of direction	Estimate position and proceed on an assumption	Rely on instinct to judge distance travelled
3 13.17.1	LAND NAVIGATION DOS AND DON'TS	DO	Plot course with map and plan detours	Check compass every 30 paces in close terrain	Check map at every identifiable feature	Locate each leg before going on to the next	Count paces and estimate distance
13							

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	rong!	3. You are wrong!	
	s right.	2. The map is right.	
·	ass is right.	1. The compass is right.	
	Remember:	Reme	
		the error occurred. Recon to find a landmark.	
		course in your mind	
		back over the	
	compass and carry on.	not conform to the map-STOP. Go	
	DON'T	DO If the ground does	<u> </u>
	DON'Ts	DOS AND DON'TS	
	LAND NAVIGATION		_

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13.18.1	NAVIGATING WITH STEERING MARKS	ACTION	Dismount and move away from vehicle	Set azimuth on compass	Pick steering mark in distance on azimuth	Remount and proceed to steering mark in straight line	Repeat STEPS 1-4 if you reach steering mark or your direction changes	Continue until end is reached	
		STEP	-	7	က	4	သ	9	Notes:
13								•	

7	13 19 1	
	Azimuth will vary slightly from azimuth computed in STEP 3	9
	Drive vehicle along azimuth	5
	Line up vehicle on azimuth	4
	Add or subtract 180 degrees to determine forward azimuth for travel	က
	Determine azimuth for direction of travel	7
	Dismount and move away from vehicle	-
>	ACTION	STEP
	NAVIGATING WITHOUT STEERING MARKS	

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13.20.1	MOUNTED NAVIGATION BY TERRAIN ASSOCIATION	ACTION	Determine start point and destination, and draw line between them	Analyze terrain for ease of movement, recognizable terrain features, and tactical considerations	Follow features in terrain	Break route into smaller segments	Determine distance between each segment & total distance using odometer	Plan for any problems on route
~		STEP	-	0	က	4	ည	9
13								

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DIRECTION FINDING WITHOUT A COMPASS	SHADOW-TIP METHOD	ACTION	Place stick straight up in ground pointed toward sun	Mark 1st shadow point (west)	Wait 10-15 minutes	Mark 2nd shadow point (east)	Draw east-west line through 2 points	Draw 2nd (north-south) line at 90 degrees to 1st line	Find the direction you want using both lines	12 21 1
		STEP	_	2	3	4	5	9	7	
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7					>			_	>			
13.21.2	DIRECTION FINDING WITHOUT A COMPASS	ACTION	Find direction you want using north-south & east-west lines	WATCH METHOD (NORTHERN)	ACTION	Point hour hand at sun	South is halfway between hour and and 12 o'clock	WATCH METHOD (SOUTHERN)	ACTION	Point 12 o'clock at sun	North is halfway between hour hand and 12 o'clock	
		STEP	8		STEP	ŀ	8		STEP	-	8	
133										•		

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13.22.1	HOUTE PLANNING GUIDE	5									
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l i	3							_	7
DIRECTION FINDING WITHOUT A COMPASS	NORTH STAR METHOD ACTION	Locate the Big Dipper	Locate the 2 pointer stars (in the cup farthest from the handle of the Big Dipper)	Locate the North Star (5 times the distance between pointer stars away from the cup)	Face the North Star	East is on your right	West is on your left	South is to your rear	0 70 01
	STEP	1	2	က	4	5	9	7	

MEDICAL TABLE OF CONTENTS ITEM Evaluate a casualty Symptoms of shock exhaustion First aid for heat cramps or exhaustion Symptoms of heat stroke Evaluate a casualty First aid for heat stroke Symptoms of frostbite First aid for rostbite First aid for cold injuries Symptoms of cold injuries First aid for cold injuries First aid for cold injuries Set up a helicopter landing site TABLE OF CONTENTS 14.1.1 14.9.1 14.10.1 14.11.1 Set up a helicopter landing site 14.13.1
MEDICAL LE OF CONTENT ITEM ISUALL ISU
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14.0.2	MEDICAL TABLE OF CONTENTS	ITEM	
14		_	

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EVALUATE A CASUALTY	ACTION	Check responsiveness	Ask if victim is all right	Shake or tap on shoulder	Watch for response	Is victim conscious? If YES, go to STEP 1E. If NO, go to STEP 1G.	If conscious, ask where victim hurts or feels different than usual	Watch for response	If victim is unconscious, go to STEP 2
	STEP	-	1A	18	10	10	Ħ	#	15

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T		>										
14.1.2	EVALUATE CASUALTY	ACTION	Check breathing and pulse	Is victim breathing? If YES, go to STEP 2B. If NO, go to STEP 2D.	Look for rise/fall of chest	Look and listen for breathing	If not breathing, begin treating	Check bleeding	Look for spurting blood or blood-soaked clothes	Look for entry or exit wounds	If bleeding, begin treating	
		STEP	2	2A	2B	2C	2D	က	3A	3B	30	
14											-	1

	>					_		:	
EVALUATE A CASUALTY	ACTION	Check for shock	Check for fractures	Back or neck-do not move if suspect neck or back injury	Arm and leg/closed or open	If you suspect fracture, begin treating	Check for burns	Look for reddened skin, blackened skin, or singed clothing	If burns found, begin treating
	STEP	4	5	5A	5B	5C	9	6A	6B

14	14.2.1	
	Nausea and/or vomiting	တ
	Blotchy, blush skin, especially around the mouth	8
	Fast breathing rate	7
	Confusion	9
	Loss of blood	5
T	Thirst	4
	Restlessness/nervousness	3
	Paleness of skin	2
	Sweaty, cool skin	-
>	SYMPTOM	ITEM
	SYMPTOMS OF SHOCK	

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14.3.1	PREVENTING SHOCK	ACTION	Position victim by moving to covered area	Lay victim on back unless sitting allows easier breathing	Elevate feet higher than heart	Loosen tight clothing at neck, waist, and ankles unless in chemical environment	Keep victim from chilling or overheating	Watch victim for life- threatening conditions	Seek medical aid
		STEP	1	2	င	4	5	9	7
14									<u> </u>

Symptoms of shock Preventing shock Symptoms of heat cramps or exhaustion First aid for heat stroke Symptoms of heat stroke First aid for heat stroke Symptoms of frostbite First aid for cold injuries Symptoms of cold injuries First aid for cold injuries Set up a helicopter landing site 14.2.1 Symptoms of Stroke injuries Symptoms of Cold injuries 14.10.1 Set up a helicopter landing site
exhaustion Symptoms of heat stroke First aid for heat stroke Symptoms of frostbite First aid for frostbite Symptoms of cold injuries First aid for cold injuries First aid for army air MEDEVAC Set up a helicopter landing site 14.13.1

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14.0.2	MEDICAL TABLE OF CONTENTS	ITEM	
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EVALUATE A CASUALTY	ACTION	Check responsiveness	Ask if victim is all right	Shake or tap on shoulder	Watch for response	Is victim conscious? If YES, go to STEP 1E. If NO, go to STEP 1G.	If conscious, ask where victim hurts or feels different than usual	Watch for response	If victim is unconscious, go to STEP 2
	STEP	-	1A	18	10	10	16	1F	1G

4										·	
											
14.1.2	EVALUATE CASUALTY	ACTION	Check breathing and pulse	Is victim breathing? If YES, go to STEP 2B. If NO, go to STEP 2D.	Look for rise/fall of chest	Look and listen for breathing	If not breathing, begin treating	Check bleeding	Look for spurting blood or blood-soaked clothes	Look for entry or exit wounds	If bleeding, begin treating
		STEP	2	2A	2B	2C	2D	က	3A	3B	3C
14					•			<u> </u>	•	•	•

14		14.1.4	14	
		EVALUATE CASUALTY		
	STEP	ACTION	>	
	7	Check for concussion		
	8	Watch for symptoms which require medical aid		- · · · · · · · · · · · · · · · · · · ·
	6	SEEK MEDICAL AID ASAP		
	Notes:			
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SYMPTO Sweaty, cc Sweaty, cc Paleness of Paleness of Dictor Confusion Fast breat Blotchy, blacound the Around the Nausea ar		>										14
1 EM 1 2 2 1 1 EM 6 8 6	SYMPTOMS OF SHOCK	SYMPTOM	Sweaty, cool skin	Paleness of skin	Restlessness/nervousness	Thirst	Loss of blood	Confusion	Fast breathing rate	Blotchy, blush skin, especially around the mouth	Nausea and/or vomiting	14.2.1
		ITEM	-	2	3	4	5	9	7	8	6	

PREVENTING SHOCK STEP ACTION 1 Position victim by moving to covered area 2 Lay victim on back unless sitting allows easier breathing 3 Elevate feet higher than heart waist, and ankles unless in chemical environment 5 Keep victim from chilling or overheating 6 Watch victim for lifethreatening conditions 7 Seek medical aid	4									
	_		>							
STEP 1 1 2 2 3 3 7 7 7	14.3.1	PREVENTING SHOCK		Position victim by moving to covered area	Lay victim on back unless sitting allows easier breathing	Elevate feet higher than heart	Loosen tight clothing at neck, waist, and ankles unless in chemical environment	Keep victim from chilling or overheating	Watch victim for life- threatening conditions	Seek medical aid
			STEP	-	2	က	4	5	9	7

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	SYMPTOMS OF HEAT CRAMPS OR EXHAUSTION	SYMPTOM	Heat cramps	Muscle cramps in abdomen, legs, or arms	Much sweating and thirst	Heat exhaustion	Headache and dizziness	Much sweating	Cramps and weak	Loss of appetite and nausea	Skin is pale, moist, and clammy	1441
	O	ITEM	1	1A	18	2	2A	2B	2C	2D	2E	
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14.5.1	FIRST AID FOR HEAT CRAMPS OR EXHAUSTION	ACTION	Move victim to a shaded area	Loosen victim's clothing	Is victim conscious? If YES, go to STEP 4. If NO, go to STEP 5.	If conscious, give 3-5 canteens of cool salt water in next 12 hours	If unconscious, seek medical aid ASAP	If no aid available, when casualty is conscious, go to STEP 4
	0	STEP	ļ	2	င	4	2	9
14								

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	This is a MEDICAL EMERGENCY!	SYMPTOM	Skin is hot and dry	Sweating stopped	Victim may collapse or pass out quickly after a headache	Dizziness	Fast pulse	Nausea	Vomiting	Mental confusion		14.6.1
SΥ	Note:	ITEM	-	2	က	4	5	9	7	8	Notes:	

14								
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14.7.1	FIRST AID FOR HEAT STROKE	ACTION	Can victim be immersed in	water? If YES, go to STEP 2. If NO, go to STEP 3.	Immerse victim in cold water, add ice if possible	If cannot immerse, move to shaded area, remove clothing, sprinkle victim with water and fan	MEDEVAC victim, cool all the way	When conscious, give victim cool water
	H	STEP	1		2	ဇ	4	2
14								

15	SYMPTOMS OF FROSTBITE	
L_	SYMPTOM	>
Z	Numbness in affected area	
<u> </u>	Itchy skin in affected area	
R S	Redness of skin or pale, waxy skin in light-skinned soldiers	
ပ ဗိ	Grayish coloring of skin in dark-skinned soldiers	
S	Swollen or tender areas	
m	Blisters	
₽ L	Areas of skin which are firmer than surrounding areas	
Notes:		
	14.8.1	14
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FIRST AID FOR FROSTBITE STEP ACTION 1 Move victim to sheltered area 2 Warm affected areas using body heat 2A Cover and keep victim warm clothing against another solider 3 Cover and keep victim warm 4 Seek medical aid ASAP	TBITE
	7
	d area
	sing
	warm
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	ing I
	warm
	C.
5 Do not cause further injury by rubbing/soaking injured area	ury by d area

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T —	<u> </u>	>						
14.11.1	FIRST AID FOR COLD INJURIES	ACTION	Move victim to a shelter or protected area	Cover victim with blankets or a sleeping bag plus a wind- proof plastic bag, if possible	If conscious, give victim hot drinks and sugar by mouth	Do not try to warm victim by rubbing limbs or skin, giving alcohol, or using hot water bottles	Do not encourage victim to walk even after he has apparently recovered	MEDEVAC victim ASAP
	FIF	STEP	-	7	က	4	5	9
14		-	-					

REQUEST ARMY AIR MEDEVAC Note: Send secure or encrypt all items. Report only information/amount(s)/brevity/number(s) that apply. LINE ITEM 1 UTM coord of pick-up site 2 Pick-up site radio frequency, call sign, and suffix 3 Number of patients by priority [(#)-1=urgent, 2=priority, 3=routine] 4 Special equip required [(#)-5=none, 6=hoist, 7=stokes litter, 8=forest/jungle penetrate] 5 Number of patients by type [(#)-9=litter, 0=ambulatory (sitting)]									14
Note: Send secure or encrypt all item Report only information/amount(s)/bre number(s) that apply. LINE ITEM 1 UTM coord of pick-up site 2 Pick-up site radio frequency, call sign, and suffix 3 Number of patients by priority [(#)-1=urgent, 2=priority, 3= routine] 4 Special equip required [(#)-5= none, 6=hoist, 7=stokes litter, 8=forest/jungle penetrate] 5 Number of patients by type [(#)-9=litter, 0=ambulatory (sitting)]	ပ္ခါ	s. vity/	>						'
Report 1 1 2 2 2 3 3 3 5	QUEST ARMY AIR MEDEVA	Send secure or encrypt all item t only information/amount(s)/bre er(s) that apply.	ITEM	UTM coord of pick-up site	Pick-up site radio frequency, call sign, and suffix	Number of patients by priority [(#)-1=urgent, 2=priority, 3=routine]	Special equip required [(#)-5= none, 6=hoist, 7=stokes litter, 8=forest/jungle penetrate]	Number of patients by type [(#)-9=litter, 0=ambulatory (sitting)]	14.12.1
	RE	Note: Repor	LINE	1	2	င	4	5	_

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FEQUEST ARMY AIR MEDEVAC LINE Security of pick-up site [(#)–1= no en in area, 2=possible en in area, 3=en in area, 4=en in area (armed escort required)] 7 Method of marking pick-up site [(#)-5=panels, 6=flare signal, 7=smoke signal, 8=signalman, 9=strips of fabric/parachute, 0=branches/wood/stone put together, 1=signal lamp/flash- light, 2=vehicle lights, 3=open flame] 8 Patient nationality and status [(#)-4=US mil, 5=US civ, 6= non-US mil, 7=non-US civ, 8=POW]					
R P P P P P P P P P P P P P P P P P P P	QUEST ARMY AIR MEDEVAC	ITEM	Security of pick-up site [(#)–1= no en in area, 2=possible en in area, 3=en in area, 4=en in area (armed escort required)]	Method of marking pick-up site [(#)-5=panels, 6=flare signal, 7=smoke signal, 8=signalman, 9=strips of fabric/parachute, 0=branches/wood/stone put together, 1=signal lamp/flashlight, 2=vehicle lights, 3=open flame]	Patient nationality and status [(#)-4=US mil, 5=US civ, 6= non-US mil, 7=non-US civ, 8=POW]
	H	LINE	9	7	æ

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14.13.1	SET UP A HELICOPTER LANDING SITE	ACTION	Select landing site	Size of landing site	Requires level landing area at least 30 m in diameter	Use 10 to 1 ratio to lay out landing site when obs are in approach/departure routes	Ground slope of landing site	Must be no more than 15 degrees	Is slope under 7 degrees? If YES, go to STEP 3C. If NO, go to STEP 3D.
		STEP	1	2	2A	28	3	3A	3B
7									

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SET UP A HELICOPTER LANDING SITE	ACTION	Land helicopter upslope	Land helicopter sideslope	Surface conditions	Is ground firm enough? If YES, go to STEP 4B. If NO, go to STEP 4C.	Will keep helicopter from bogging down during loading and unloading	Tell pilot to hover over site during loading/unloading	Avoid dusty, sandy, or snow-covered areas	14.13.2
	STEP	30	3D	4	4A	4B	4C	4D	

4									
_		>							
14.13.3	SET UP A HELICOPTER LANDING SITE	ACTION	Remove loose debris from landing site	Obstacles	Remove tall trees, telephone lines, powerlines or poles, and similar obstructions on approach/departure ends	Clearly mark obstructions that you cannot remove	Establish security around entire landing site	Mark landing site and touchdown point	
_		STEP	4E	2	5A	5B	9	7	
14						_			•

COPTER ITE	ituation ituation with smoke	ding site bint with osed of	llashlights, mark	/stem to ke contact
SET UP A HELICOPTER LANDING SITE ACTION Base markings on mission.	capabilities, and situation Mark landing site with smoke and a signalman	At night, mark landing site and touchdown point with inverted "Y" composed of four lights	Use strobe lights, flashlights, or vehicle lights to mark landing site	Explain marking system to pilot when you make contact
STEP 7A	78	7C	7D	7E

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14.13.5 NOTES	
NO 14.	
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	S	PAGE		
15.0.2	CONTINUOUS OPEATIONS TABLE OF CONTENTS	ITEM		
15				
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SNONS	PAGE	15.1.1 15.2.1 15.3.1 15.4.1 15.5.1	
CONTINUOUS OPERATIONS TABLE OF CONTENTS	ITEM	Planning for CONOPS Symptoms of sleep loss Symptoms of stress Symptoms of stress in unit Dealing with stress	15.0.1

П	>					-, ,	
PLANNING FOR CONOPS	ACTION	Do not go longer than 24 hours without sleep	Recognize symptoms of stress/sleep loss	Share duties among leaders so all leaders can get sleep	Set up/enforce an eating and sleeping schedule	Include order issue and movement times in warning orders so subordinates can schedule sleep	Do not let soldiers sleep in
	ITEM	-	2	3	4	5	9

>						
ACTION	If mounted, have soldiers dismount and pitch a lean-to for sleeping	When soldiers are tired, give simple orders in a firm manner	Make subordinates repeat back all orders			
ITEM	7	ω	6	Notes		
		TEM ACTION 7 If mounted, have soldiers dismount and pitch a lean-to for sleeping	TEM ACTION 7 If mounted, have soldiers dismount and pitch a lean-to for sleeping 8 When soldiers are tired, give simple orders in a firm manner	TEM ACTION 7 If mounted, have soldiers dismount and pitch a lean-to for sleeping 8 When soldiers are tired, give simple orders in a firm manner 9 Make subordinates repeat back all orders	TEM ACTION 7 If mounted, have soldiers dismount and pitch a lean-to for sleeping 8 When soldiers are tired, give simple orders in a firm manner 9 Make subordinates repeat back all orders Notes:	TEM ACTION 7 If mounted, have soldiers dismount and pitch a lean-to for sleeping 8 When soldiers are tired, give simple orders in a firm manner 9 Make subordinates repeat back all orders Notes:

Sy 1	SYMPTOMS OF SLEEP LOSS SYMPTOM Being negative Forgetfulness	(0)
4	Ignoring orders	
0 2	Mood changes Not alert	
7	Not understanding what is said	
ω .	Slow response time	
6	Very irritable	
10	Very short attention span	
	15.2.1	15

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_		>									
15.3.1	SYMPTOMS OF STRESS	SYMPTOM	Changes in eating behavior	Feeling angry at everyone	Feeling anxious, depressed, irritable, or annoyed	Feeling tense or frustrated with no outlet	Feeling tired even after rest	Low self-confidence and feeling lonely	Not caring about anyone or anything	Physical problems	
		ITEM	_	2	က	4	ري د	9	7	8	
15											•

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15.4.1	SYMPTOMS OF STRESS IN UNIT	SYMPTOM	Frequent conflicts within unit	High AWOL and sick call rates	Increase in soldiers' complaints	Insubordination	Poor productivity and lack of pride in work	Sensitivity and resenting criticism	Soldiers exhibit lack of pride in unit	Soldiers ignore orders, SOPs, and policies
	SYN	ITEM	-	2	က	4	5	9	7	8
15							<u> </u>			

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15.5.2	NOTES									
15										

	<u> </u>									15
DEALING WITH STRESS	ACTION	Be a good listener	Encourage communication	Calm stressed soldier	Determine reason(s) for problem	Talk about problem and how to resolve it	Point out plans for dealing with problem	Offer suggestions for solutions	Make decisions about how to deal with problem	15.5.1
ļ 1	ITEM	1	2	င	4	2	9	7	ω	
<u></u>										15

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ļ	S	PAGE	
16.0.2	AIR DEFENSE TABLE OF CONTENTS	ITEM	
16			

9		16.0.1	16
	16.1.1 16.2.1 16.3.1 16.4.1	Engaging aircraft Air defense warning Weapons control status Passive air defense	
	PAGE	ITEM	
	S	AIR DEFENSE TABLE OF CONTENTS	
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ENGAGING AIRCRAFT Note: Specific rules for engaging aircraft are in your unit SOP or issued in your commander's order. In the absence of such guidance, follow the steps below: STEP ACTION I Immediately engage all attacking aircraft helicopters positively identified as hostile helicopters positively identified as hostile Brigage when friendly ADA units are engaging enemy aircraft in your area 4 Engage hostile jet aircraft not attacking your position only after ordered to fire
ENGAGING AIRCRAFT Specific rules for engaging aircraft your unit SOP or issued in your nander's order. In the absence of guidance, follow the steps below: ACTION ACTION Immediately engage all attacking aircraft helicopters positively identified as hostile Engage when friendly ADA units are engaging enemy aircraft in your area Engage hostile jet aircraft not attacking your position only after ordered to fire
ENGAGING AIRCRAFT Specific rules for engaging aircraft your unit SOP or issued in your nander's order. In the absence of guidance, follow the steps below: ACTION ACTION Immediately engage all attacking aircraft helicopters positively identified as hostile Engage when friendly ADA units are engaging enemy aircraft in your area Engage hostile jet aircraft not attacking your position only after ordered to fire
ENGAGING AIRCRAFT Specific rules for engaging aircyour unit SOP or issued in your nander's order. In the absence orguidance, follow the steps below ACTION Immediately engage all attacking aircraft helicopters positively identified as hostile Engage when friendly ADA units are engaging enemy aircraft in your area Engage hostile jet aircraft not attacking your position only after ordered to fire

AIR DEFENSE WARNING NING MEANING CD Attack by hostile aircraft or missiles is IMMINENT or IN PROGRESS OW Attack by hostile aircraft or missiles is PROBABLE aircraft or missiles is IMPROBABLE IMPROBABLE
E WARNING EANING hostile aircraft es is IMMINENT OGRESS hostile aircraft ss is PROBABLE hostile r missiles is ABLE
DEFENSE WAR MEANING Attack by hostile or IN PROGRES Attack by hostile or missiles is PR Attack by hostile aircraft or missile IMPROBABLE
AIR C WARNING RED YELLOW

	WEAP	WEAPONS CONTROL STATUS	S	
	STATUS	ACTION	>	
	Weapons FREE	You may fire at any aircraft NOT positively identified as friendly		
	Weapons TIGHT	You can fire only at aircraft POSITIVELY identified as HOSTILE according to the announced hostile criteria		
	Weapons HOLD	DO NOT FIRE except in self-defense		
	Notes:			
16		16.3.1	_	16
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16	16.4.2	
	Enforce total blackout at night	15
	Specify both visual and audible air warning signals	14
	Specify air warning signals in unit SOP	13
	Rotate air guards frequently	12
	Post air guards on vehicles and in dismounted positions	=
	Wipe out vehicle track marks around stationary positions	10
	Disperse vehicles	6
	Maintain COMSEC while moving	8
>	ACTION	ITEM
	PASSIVE AIR DEFENSE	

9								
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16.4.3	PASSIVE AIR DEFENSE	ACTION	Enforce noise discipline	Enforce area police	Camouflage spoil from all dismounted positions			
		ITEM	16	17	18	Notes:		
16								

VEHICLE RECOVERY TABLE OF CONTENTS ITEM PAGE Vehicle recovery fundamentals Unit vehicle recovery fundamentals and equipment Vehicle recovery capabilities Winch variable capacities Fiber/wire rope and chain Capacities Sling leg forces Rigging example 17.7.1 Rigging example
HCLE RECOVERY LE OF CONTENT ITEM very procedure very fundamentals recovery methods recovery methods recovery methods recovery dundamentals recovery fundamentals recovery fundamentals recovery capabilities recovery capabilities recovery methods recovery dundamentals recovery fundamentals recovery fundamental
VEHICL TABLE ITEI Vehicle recovery Vehicle recovery Unit vehicle recovery Winch variable controls Fiber/wire rope a capacities Sling leg forces Rigging example

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_	/ S	PAGE	
17.0.2	VEHICLE RECOVERY TABLE OF CONTENTS	ITEM	
17			

S H I	>			
VEHIC PF FER-Move AST 2 can ng resist	PROCEDURE RECON THE AREA—check the terrain for an approach to the load, method of rigging, and natural anchorages	ESTIMATE SITUATION— Decide load resistance and and capacity of the effort aval	CALCULATE RATIO—Compute an estimate of mechanical advantage for the rigging	OBTAIN RESISTANCE— Compute tackle resistance and the total resistance
DANG AT LE applyi	STEP	8	က	4

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T		>				
17.1.2	VEHICLE RECOVERY PROCEDURE	PROCEDURE	VERIFY SOLUTION-Compute line forces to compare with the winch & dead line capacities	ERECT RIGGING-Orient crew instruct them to assemble rigging-move them to a safe location	RECHECK RIGGING-Make sure that the rigging is set up for proper and safe operation	YOU ARE NOW READY— Signal the operator to apply power to the winch and recover the load
		STEP	5	9	2	ω
17						

VEHICLE RECO FUNDAMENT FUNDAMENT FUNDAMENT ESTIMATING LOAD RESISTANCES: Overturned=1/2 ve Nosed (grade)=vel Mired wheel-deep weight Mired tender-deep wehicle deep wehicle deep wehicle weight LOAD RESISTANCE FACTORS (note: doe wheeled, or nosed/o tracked vehicles): 10%—Recovery in direction from which vehicle was traveling	VERY ALS TAL	hicle weight nicle weight =vehicle =DOUBLE :TRIPLE	E REDUCTION Solve apply to verturned the OPPOSITE the mired
, , , — , , , , , , , , — , , , , , , ,	VEHICLE RECOVERY FUNDAMENTALS FUNDAMENTAL	ESTIMATING LOAD RESISTANCES: Overturned=1/2 vehicle weight Nosed (grade)=vehicle weight Mired wheel-deep=vehicle weight Mired fender-deep=DOUBLE vehicle deep vehicle weight	LOAD RESISTANCE REDUCTION FACTORS (note: does not apply to wheeled, or nosed/overturned tracked vehicles): 10%—Recovery in the OPPOSITE direction from which the mired vehicle was traveling

/		_			
17.2.2	VEHICLE RECOVERY FUNDAMENTALS	FUNDAMENTAL	 40%—Apply power to the tracks of the mired vehicle 50%—COMBINATION of recovery in opposite direction + applying power to the tracks of the mired vehicle 	LOAD RESISTANCE: Obtain this by subtracting the reduction factors from the estimated load resistance	MECHANICAL ADVANTAGE: • Estimate-DIVIDE the load resistance by the available effort (the capacity of the winch) • Tackle-EQUAL to the number of winch lines supporting the load (lines which can become shorter)
		ITEM	2 cont.	က	4
17					

VEHICLE RECOVERY FUNDAMENTALS FUNDAMENTAL	TACKLE RESISTANCE: 10% of the load resistance TIMES the number of sheaves (grooved wheel(s) in block(s) of the rigging	resistance PLUS tackle resistance TACKLE TERMINOLOGY: Fall line—This is the winch line	which runs from the source of effort to the first block in the tackle (there is ONLY ONE fall line in a simple tackle system) Return lines—These are the winch	lines between the blocks or the winch line from the sheave of a block to the point where the end of
ITEM	r		<u>> ω ω σ .</u>	= > 11

	17.2.4
i	VEHICLE RECOVERY FUNDAMENTALS
ITEM	FUNDAMENTAL
7	Dead lines-These are the lines
Cont	used to attach blocks or other equipment to the load or to an
T	
æ	LINE FORCES:
	DIVIDED by mechanical advantage
	Dead line–Fall line force TIMES
	the number of lines that the dead line supports
ת	ALIACHMENI OF RIGGING:
	Always attach tow cables to TOW
	towing piptles
	• All light tracked vehicles carny
-	one 10-ft tow cable: all main battle
	tanks carry two 10-ft tow cables

VEHICLE RECEDINDAME FUNDAME CONT. Hem from tanglic vehicles aligned Always position open part (throat) Never handle cropes without he palmed gloves Always place so hooks/shackles/erequiring them Do NOT apply Vehicle operation hatches closed a hatches closed a hatches closed a hatches: Allow NO SMO FLAMES if fuel or Notes:	COVERY NTALS ENTAL	ng and keep the n a hook with the) UPWARD ables or wire avy leather-	afety keys in equipment loads SUDDENLY ors must keep nd use periscopes KING or OPEN r oil has spilled	17
	-	he the	ENLY copes n	'
	VEHICLE RECOVERY FUNDAMENTALS FUNDAMENTAL		 Always place safety keys in hooks/shackles/equipment requiring them Do NOT apply loads SUDDENLY Vehicle operators must keep hatches closed and use periscopes Allow NO SMOKING or OPEN FLAMES if fuel or oil has spilled 	

•	VERY PMENT	EQUIP	Similar vehicles– trucks w/winches– materials on hand	Recovery	Wrecker trucks- recovery vehicles
17.3.1	UNIT VEHICLE RECOVERY METHODS AND EQUIPMENT	METHODS	Towing Winching Expedients	Winching Lifting Towing	Winching Lifting Towing
	NIT VEH	PSNL	Crew/ operator	Repair- men	Repair- men
7	ME	UNIT	Pit	Со	Bu
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METHODS AND EQUIPMENT UNIT PSNL METHODS EQUIP DS Repair- Winching Wrecker and men Lifting recovery Transport vehicles Notes:			_
METHODS AND EQUIF UNIT PSNL METHODS DS Repair- Winching and men Lifting GS Towing Transport Notes:	VERY PMENT EQUIP Wrecker trucks- recovery vehicles- transport vehicles		•
UNIT VEH METHODS UNIT PSNL DS Repairand GS men GS	ICLE RECO AND EQUIF METHODS Winching Lifting Towing Transport		17.3.2
MI MI and and as and as Notes	NIT VEH ETHODS PSNL Repair- men		
· · · · · · · · · · · · · · · · · · ·	ME UNIT DS and GS	Notes	N.

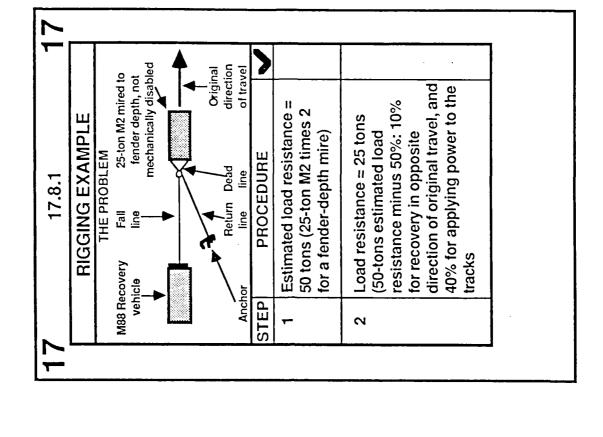
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T		CITY	TOW	15	23	30	56	ehicle Jal of Vel, Se gear
	OVERY IES	MAXIMUM CAPACITY (TONS)	LIFT	10	12	15	25	tracked v w the equ on dry, le I in rever
17.4.1	VEHICLE RECOVERY CAPABILITIES	MAXIM(WINCH	22.5	22.5	30	45	Averaged tracked vehicle can pull/tow the equal of its weight on dry, level, hard-stand in reverse gear
	VEHIC CA	VEHICLE TYPE		M62/M543 Wrecker Truck	M553 GOER Wrecker	M578 Recovery Vehicle	M88 Recovery Vehicle	Tracked Vehicles
17	· · · · · · · · · · · · · · · · · · ·							

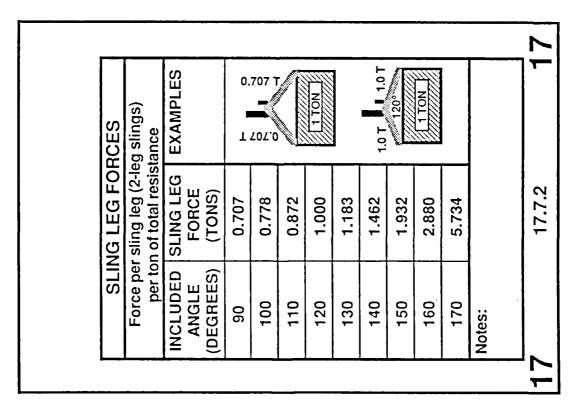
WINCH VARIABLE CAPACITIES INCH CABLE CABLE ON CAPACITY YPE LAYER DRUM (FT) (TONS) 5 1 0 -39 5.000 Ton 2 40 -85 4.225 3 86 - 138 3.670 3 86 - 138 3.670 5 200 - 266 2.890 Ton 2 42 - 91 8.450 3 92 - 148 7.250 5 214 - 287 5.700 Ton 2 43 - 93 18.850 Ton 2 43 - 93 16.250 4 154 - 220 11.400 5 221 - 296 12.650 6 297 - 380 11.400			1
CABLE CABLE CAP, CABLE CABLE ON LAYER DRUM (FT) 2 40 - 85 3 86 - 138 4 139 - 199 5 200 - 266 5 200 - 266 7 42 - 91 3 92 - 148 4 149 - 213 5 214 - 287 7 2 43 - 93 3 94 - 153 4 154 - 220 5 221 - 296 6 297 - 380	ACITIES CAPACITY (TONS) 5.000 4.225 3.670 3.230 2.890	10.000 8.450 7.250 6.400 5.700 18.850 16.250 14.250 11.650	T
CABLE LAYER 1 1 2 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	ABLE CAP/ CABLE ON DRUM (FT) 0 – 39 40 – 85 86 – 138 139 – 199 200 – 266		7 11 7
	CABLE CABLE LAYER 1 2 3 3 4	- 0 m 4 m 0	

7													
•	ACITIES	CAPACITY (TONS)	30.000	26.000	20.000	45.000	38.000	32.000	28.000				
17.5.2	WINCH VARIABLE CAPACITIES	CABLE ON CAPACITY DRUM (FT) (TONS)		56 - 128	l I	0 – 41	42 – 91	'n	150 – 200				
	H VARI	CABLE LAYER	-	0 0) 4	-	7	က	4				
	WINC	WINCH TYPE	30	Ton	gear)	45	Ton	(low	gear)	Notes:			
17													

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T	RCES	eg slings) tance	EXAMPLES			** د ـ	T 003		1 TON			0.57 2 1 44	-1 TON	
17.7.1	SLING LEG FORCES	Force per sling leg (2-leg slings) per ton of total resistance	SLING LEG	FORCE (TONS)	005.0	0.502	0.508	0.518	0.532	0.552	0.577	0.610	0.653	
	SLIN	Force per to	INCLUDED	ANGLE (DEGREES)	0	10	20	30	40	20	09	20	80	
1/														

			Ţ-				ı	r					1
E AND ITIES	WIRE ROPE (IPS) & CHAIN	1=4D-(10NS) 5.625	7.65625	10.00	15.625	22.50	30.625	40.00	50.625	62.50	90.00		
FIBER/WIRE ROPE AND CHAIN CAPACITIES	FIBER ROPE WIRE ROPE (SISAL) (IPS) & CHAIN	0.5625	0.765625	1.00	1.5625	2.25	3.0625	4.00	5.0625	6.25	9.00		
FIBE	DIAMETER (INCHES)	3/8	7/16	1/2	5/8	3/4	2/8	-	1-1/8	1-1/4	1-1/2	Notes:	





	>						17
RIGGING EXAMPLE	PROCEDURE	Mechanical advantage=2 to 1 (50-ton load resistance divided by 45-ton winch capacity)	Tackle resistance = 2.5 tons (10% of 25-ton load resistance = 2.5 tons times 1 sheave)	Total resistance = 27.5 tons (25-ton load resistance plus 2.5-ton tackle resistance)	Fall line force = 13.75 tons (27.5-ton total resistance plus 2.5-ton tackle resistance)	Dead line force = 27.5 tons (13.75-ton fall line force times 2 lines dead line supports)	17.8.2
	SIEP	က	4	လ	စ	7	

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17.8.3	NOTES									
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18.0.2	WEAPONS TABLE OF CONTENTS	ITEM								•				
18					•							 	 	
Γ_			·· ·										 	 8
			S	PAGE	18.1.1	18.2.1		18.3.1	18.4.1					
		WEAPONS	TABLE OF CONTENTS	ITEM	Lay M60 machine gun by	Lay SAW by aiming or	elevation	Lay M60 or SAW with a log or hoard	Lay M60 or SAW with notched-					18.0.1
			!								—	 		 ∞

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PAGE

48

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LAY M60 MACHINE GUN BY AIMING OR ELEVATION	ACTION	Set rear sight slide at estimated range to target	Align sights on targets	With gun laid on target, mark a spot on ground under the gas cylinder extension	Drive stake into spot marked on ground	Relay sights on target with gas cylinder on top of stake holding gun in proper bipod firing position	Extend bipod to provide solid mount for gun
L,	STEP	-	2	က	4	3	9

LAY SAW BY AIMING OR ELEVATION STEP ACTION 1 Set rear sight slide at estimated range to target 2 Align sights on targets a spot on ground under the handguard assembly 4 Drive stake into spot marked on ground 5 Lay sights again on target when handguard assembly is laid on top of stake with gun held for bipod firing properly 6 Extended bipod to provide a solid mount for the gun	18			 					
STEP 3 2 2 4 6 9	18.2.1	LAY SAW BY AIMING OR ELEVATION		Set rear sight slide at estimated range to target	Align sights on targets	With gun laid on target, mark a spot on ground under the handguard assembly	Drive stake into spot marked on ground	Lay sights again on target when handguard assembly is laid on top of stake with gun held for bipod firing properly	Extended bipod to provide a solid mount for the gun
	~		STEF	-	2	3	4	5	9

Aim weapon toward desired sector of graze Place log or board beneath stock of weapon so that stock can slide across it Dig shallow trenches or grooves for bipod feet to allow rotation of feet as you move stock
Aim weapon toward desired sector of graze Place log or board beneath stock of weapon so that stock can slide across it
on toward desired raze

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	JD SD			sure				
18.3.2	LAY M60 OR SAW WITH A LOG OR BOARD	ACTION	Use bipod firing position and grip	Fire confirming burst to ensure that you have correctly laid weapon on target	•			
		STEP	9	7	Notes:			
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7.	ES				: :						
18.4.2	NOTES										
18	<u></u>	 <u> </u>		<u> </u>	<u> </u>					,	

	>							18
LAY M60 OR SAW WITH NOTCHED-STAKE	ACTION	Aim weapon toward tgt area	Place stock of gun in rests of notched stakes or tree crotches	Make final adjustment to hit tgt	Dig shallow trenches/grooves for bipod feet to allow rotation of feet as you move stock	Hold, sight, and fire weapon using bipod firing position and grip	Fire confirming burst to ensure that you have correctly laid weapon on target	18.4.1
	STEP	-	2	သ	4	5	9	
								<u> 1</u> 8

Messenger briefing Messenger briefing Radio troubleshooting Preparing TA-312/PT telephone set Operating TA-312/PT TA-312/PT Installing hot loop with telephones Preparing SB-993/GT Switchboard Operating SB-993/GT Switchboard Installing commo lines Crossing objects with commo Installines Recovering field wire lines Recovering AN/VRC-46 radio set 19.11.1 Mounting AN/VRC-46 radio set	COMMO TABLE OF CONTENTS	S	
	ITEM	PAGE	
	Messenger briefing	19.1.1	
	Radio troubleshooting	19.2.1	
	Preparing TA-312/PT	19.3.1	
	 telephone set		
	 Operating TA-312/PT	19.4.1	
	telephone set		
	Installing hot loop with	19.5.1	
	TA-312/PT		
	Installing hot loop with	19.6.1	
	 telephones		
	Preparing SB-993/GT	19.7.1	
	switchboard		
·	Operating SB-993/GT	19.8.1	
	switchboard		
	Installing commo lines	19.9.1	
	Crossing objects with commo	19.10.1	
	lines		
	Recovering field wire lines	19.11.1	
	 Mounting AN/VRC-46 radio set	19.12.1	

PAGE 19.13.1 19.14.1 19.15.1 19.17.1	
S)	
COMMO TABLE OF CONTENTS ITEM Mounting AN/VRC-64 or AN/GRC-160 radio Operating Security equipment TSEC/KY-8 Preparing TSEC/KY-38 with radio set Operating TSEC/KY-38 with radio set	
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PREPARING TA-312/PT TELEPHONE SET STEP ACTION 1 Prepare telephone set for operation 1A For local battery (LB), go to STEP 2 STEP 2 1B For common battery signalling (CBS), go to STEP 3 1C For common battery (CB), go to STEP 4 2 Use flat-tip screwdiver or dime to set selector switch to "LB" 2A Install batteries	0)		>						
STEP 1 1A 1B 1C 2A	19.3.1	PREPARING TA-312/PT TELEPHONE SET		Prepare telephone set for operation	For local battery (LB), go to STEP 2	For common battery signalling (CBS), go to STEP 3	For common battery (CB), go to STEP 4	Use flat-tip screwdiver or dime to set selector switch to "LB"	Install batteries
			STEP	_	1A	18	1C	2	2A

0	1930	_
	Refasten carrying case	2G
	Close and lock cover	2F
	Insert 2 BA-30 batteries in compartment matching positive (+) and negative (-) marks	2E
	Open cover of battery compartment	2D
	Rotate battery compartment cover latch clockwise until you release cover	2C
	Remove handset from cradle & open carrying case	9
>	ACTION	מ
···	PREPARING TA-312/PT TELEPHONE SET	STEP

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1		>								7
19.3.3	PREPARING TA-312/PT TELEPHONE SET	ACTION	Set selector switch to "CBS" using flat-tip screwdiver or dime	Install batteries	Repeat STEPS 2A-2F	Set selector switch to "CB" using flat-tip screwdiver or dime	Do not install batteries	Switchboard provides power		
		STEP	3	3A	3B	4	4A	4B	Notes:	
<u>ත</u>										_

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OPERATING TA-312/PT TELEPHONE SET	ACTION	Prepare telephone set for use on horizontal surface	Remove carrying case and keep strap out	Fold top of carrying case down around sides of telephone	Position telephone set for use on support	Unhook carrying strap from ring on buzzer end of case	Adjust carrying strap so it fits around support	19.4.1
	STEP	-	1A	1 B	2	2A	28	

6								
L		>						
19.4.2	OPERATING TA-312/PT TELEPHONE SET	ACTION	Place telephone against support at convenient height	Wrap carrying strap around support and secure free end to upper ring on case	Cut length of wire, pass it thru lower loops of carrying case, and tie in place	Connect telephone to line	Strip 1 inch of insulation from ends of wire you connect	Scape clean and fold back about 1/2-inch skinned portion of each wire
_		STEP	2C	2D	2E	3	3A	3B
19								

STEP ACTION 3C Tie wire to upper ring on case 3D Push down one binding post 3E Insert bare end of wire into binding post slot 3F Release post to clamp wire 3G Repeat STEPS 3E-3F for other post 4 Do you want buzzer to sound? If YES, go to STEPS 6-8. If NO, go to STEP 5. 5 Fully rotate buzzer volume control counterclockwise to "LOW" position 19.4.3		>								19
3C 3D 3E 3G 3E 5	OPERATING TA-312/PT TELEPHONE SET	ACTION	Tie wire to upper ring on case	Push down one binding post	Insert bare end of wire into binding post slot	Release post to clamp wire	Repeat STEPS 3E-3F for other post	Do you want buzzer to sound? If YES, go to STEPS 6-8. If NO, go to STEP 5.	Fully rotate buzzer volume control counterclockwise to "LOW" position	19.4.3
		STEP	30	3D	3E	3F	36	4	ည	

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OPERATING TA-312/PT TELEPHONE SET	ACTION	Buzzer sound on "LB" op	Turn handcrank while handset is in cradle	Remove handset and listen for called party	Push press-to-talk switch to talk; release to listen	For buzzer sound on "CBS" op	Remove handset and listen for called party	Push press-to-talk switch to talk; release to listen
	STEP	9	6A	6B	29	2	7A	78
	OPERATING TA-312/PT TELEPHONE SET	ļ <u></u>	-					

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OPERATING TA-312/PT TELEPHONE SET	ACTION	Buzzer sound on "CB" op	Remove handset and listen for operator	Do not operate press-to-talk switch	Ask distant party to call back	Adjust buzzer volume control to desired volume	Connection of external handset-headset for hands-free op	Connect handset-headset or headset microphone to connector on panel of phone	L 7 07
	STEP	8	8A	88	6	10	1	11A	

6										_
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19.4.6	OPERATING TA-312/PT TELEPHONE SET	ACTION	Put handset in cradle when you have handset-headset connected	Turn "EXT-INT" switch to "EXT" position	Install/remove deicing screen	Place screen in position	Line up dot on shield with notch on transmitter	Press shield firmly over cap	Remove deicing screen by prying screen up	
		STEP	11B	11C	12	12A	12B	12C	12D	
19										

	>							
INSTALLING HOT LOOP WITH TA-312/PT	ACTION	Install field wire loop	Lay out field wire from your Cdr's position to each squad/section and back	Keep wire behind indiv psns	Tie wire to fixed object near each position	Connect each telephone (TA-312/PT) to the hot loop	Connect hot loop to your Cdr's telephone	Strip 1/2 inch of insulation off 2 wires at each end of loop
	STEP	-	1A	18	5	7	က	3A

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7				_			
19.5.2	INSTALLING HOT LOOP WITH TA-312/PT	ACTION	Connect one of wires from each end of hot loop to binding post of telephone	Connect other telephones to hot loop	Go to squad/section psn and pick up slack wire	Cut insulation on 1 conductor without cutting wire strands	Grasp insulation on each side of cut and pull insulation apart to expose 1/2 inch of wire strands on each conductor
(STEP	38	4	4A	4B	4C
C							

INSTALLING HOT LOOP WITH TA-312/PT	ACTION	Repeat STEPS 4A-4C on other conductor	Get 1 telephone (TA-312/PT) and slide exposed 1/2-inch section of 1 conductor into the slot of 1 binding post	Slide exposed 1/2-inch section of other conductor into the slot of 1 binding post	Repeat STEPS 4A-4F to connect each telephone to hot loop	Make commo check on all telephones connected to hot loop
	STEP	4D	4E	4F	4G	2

0								
1								
19.6.1	INSTALLING HOT LOOP WITH TELEPHONES	ACTION	Install hot loop	Lay out field wire from HQ/ FDC to each station in loop	Keep wire behind positions, bury it if necessary	Secure wire at each position, and leave enough slack in wire to make connections	Connect each TA-1/PT to hot loop	Connect telephone at first psn (HQ/FDC) and telephone at last psn
		STEP	-	1A	18	5	2	2A
19								

(
	If any psns do not answer, check all connections	4
	Make commo check on all positions from HQ/FDC phone	က
	Attach 1 end of cut strand to each binding post to connect phones in center of loop	2E
	Remove 1/2 inch of insulation from each cut strand of wire	2D
	To connect other stations in center of loop, cut one of the conductors of the wire	2C
	Conduct commo check between positions	2B
>	ACTION	STEP
	INSTALLING HOT LOOP WITH TELEPHONES	

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7-								
19.7.1	PREPARING SB-993/GT SWITCHBOARD	ACTION	Position switchboard for operation	Open cover of switchboard	Place switchboard and operator's telephone set on dry surface	Connect operator's telephone set	Cut length of field wire long enough to cover the entire switchboard	Strip 1 1/4 inch of insulation from each conductor on end of field wire
		STEP	-	1A	18	2	2A	2B
25.	-							

	>		
PREPARING SB-993/GT SWITCHBOARD ACTION	ACTION Double over and flatten the stripped sections of wire Insert one stripped section into each line terminal of "TEL" adapter and tighten plugs to secure field wire	Strip 1/2 inch of insulation from each conductor at other end and connect to line binding posts of operator's telephone set	Stand each adapter in jacks provided in holder
STEP	2C 2D 2D	3 SE	3A

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19.7.3	PREPARING SB-993/GT SWITCHBOARD	ACTION	Press ringing generator of operator's telephone set several times	Light in "TEL" adapter should flicker on while you operate generator	Test 6 adapters by inserting plugs of "TEL" adapter in jacks of other adapters and ringing	If adapter fails to light, discard it	Connect incoming wires	
		STEP	3B	3C	3D	3E	4	<u> </u>
19								•

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7-								
19.8.1	OPERATING SB-993/GT SWITCHBOARD	ACTION	Establishing line-to-line call	Ringing signal lights neon lamp in adapter to signal an incoming call	When lamp flashes, insert plugs of "TEL" adapter into jack of flashing adapter	Use operator's telephone to determine number called	Remove "TEL" adapter from calling party's adapter	Plug "TEL" adapter into jack of requested party's line adapter
		STEP	ļ	1A	18	10	1D	- -
(C)								

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1								
19.8.3	OPERATING SB-993/GT SWITCHBOARD	ACTION	Plug "TEL" adapter into connection and challenge to determine if it is a ring-off or re-call before disconnection	Establishing conference calls	When calling party requests conference call, instruct party to stand by while you establish call	Signal each requested party and direct them to stand-by for call	As you contact party, plug adapter into conference connection	
		STEP	1K	2	2A	28	2C	
19								

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OPERATING SB-993/GT SWITCHBOARD		After making all connections, notify calling party that call is ready	When you hear conversation, restore"TEL" adapter to "TEL" position	On re-call or ring-off, challenge the connection before disconnecting all the adapters		
	STEP	2D	2E	2F	Notes:	

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19.9.1	INSTALLING COMMO LINES	ACTION	Test field wire on reel	Attach telephone sets to payout and standing ends of wire on reel	Ring and speak through wire from one phone to other	If clear commo check, install wire	Installing field wire	Tie field wire to fixed object where line begins and ends	Allow some slack in wire to attach to telephone and switchboard
	=	STEP	1	1A	18	10	2	2A	28
19									

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3B Teleph	Telephones, switchboards, and test stations	
		1
3C Both side crossings	Both sides of buried or aerial crossings	· · · · · · · · · · · · · · · · · · ·
3D Interv	Intervals where several lines	<u> </u>
are lai	are laid along same route	
<u> </u>		٦

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19.9.3	INSTALLING COMMO LINES	ACTION	Test wire line	After every buried crossing	After every aerial crossing	Before and after you splice a new reel onto the line	Before connecting line to telephone or switchboard		
	=	STEP	4	4A	4B	4C	4Ω	Notes:	
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CROSSING OBJECTS WITH COMMO LINES	ACTION	Culvert crossing	Tie wire to fixed object and attach wire tag on each side of the road	Pass wire thru top of culvert	Add protective tape around wire at each end of culvert	Aerial crossing	Wire must clear main traffic artieries and paved roads by at least 7 m at lowest point	Use buildings, trees, or poles to raise wire
	STEP	-	4L	18	5	2	2A	2B

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19.10.2	CROSSING OBJECTS WITH COMMO LINES	ACTION	If you cannot use objects in STEP 2B, use lance poles	Lash poles together to provide 7 m clearance for wire line	Tie wire line to top of poles with clove hitch	Tie guy wires near top of pole	Raise poles	Stake guy wires at 45 degree angle to line	Tie and tag wire line to a stake at each end of crossing
		STEP	က	3A	3B	ဒင	3D	3E	3F
19									

CR	CROSSING OBJECTS WITH COMMO LINES
	ACTION
Buri	Buried crossings
Dig acr bey	Dig 6- to 12-inch deep trench across road, extending 2 feet beyond each side of road
Lay	Lay wire loosely in trench
Tie	Tie and tag wire to stake at each end of trench
Вас	Backfill the trench
Railr	Railroad crossing
Pull	Pull enough slack from wire reel to reach across tracks
	19.10.3

CROSSING OBJECTS WITH COMMO LINES WITH COMMO LINES TEP ACTION 5B Cut wire at wire reel and pull end of wire under tracks, along side of crossties Cut wire stakes beyond each shoulder of the track and tie line to stakes Drive stakes beyond each shoulder of the track and tie line to stakes Bury wire line from rails to stakes SE Bury wire line from rails to stakes STARES Continue to lay the line	19		>]
7EP 55B 55B 55B 55B 55B 55B 55B 55B 55B 55	19.10.4	CROSSING OBJECTS WITH COMMO LINES	ACTION	Cut wire at wire reel and pull end of wire under tracks, along side of crossties	Drive stakes beyond each shoulder of the track and tie line to stakes	Pull line tight	Bury wire line from rails to stakes	Splice free end of line to wire reel	Continue to lay the line	
5			STEP	5B	5C	5D	5E	5F	5G	

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19.11.2	RECOVERING FIELD WIRE LINES	ACTION	Splice field wire	Cut conductors to stagger their lengths about 6 inches	Remove insulation from each of the four conductors	Tie square knot between the long conductor of one pair and the short conductor of the other pair	Restore twist to line by wrapping the 2 remaining conductors around the 2 conductors already tied	Tie a 2nd square knot
	BEC	STEP	2	2A	2B	2C	2D	2E
5								

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RECOVERING FIELD WIRE LINES	ACTION	Remove sections of insulation from tips of conductors, untwist and flex strands	Separate steel strands from copper strands	Cut steel strands flush to the ends of insulation	Cross left-hand end of copper strands over crest of square knot	Wrap several tight turns over bare part of right-hand conductor	Cut extra wire from ends of copper strands	19.11.3
REC	STEP	2F	2G	2H	2	2	2K	
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19.11.4	RECOVERING FIELD WIRE LINES	ACTION	Repeat STEPS 2I-2K for the right-hand end of copper strands	Tape the splice	Start taping at center of splice and wrap tape to cover 1-1/2 inches of insulation at one end	Work tape back over center knot to cover 1-1/2 inches on opposite side	Work tape back again to center of splice		
	REC	STEP	2L	က	3A	3B	3C	Notes:	
19									

SET						19
MOUNTING AN/VRC-46 RADIO SET STEP ACTION	Mount receiver-transmitter (R-T)	Make sure mount is clean and grounding straps connect securely between top strap and mount base	Remove rubber receptacle cover and make sure that chain is clear of guide pins and receptacle	Make sure vent port is free of obstructions	Lift and position R-T mount and carefully slide it back to seat plug in mount receptacle	19.12.1
MOUI	1	1A	18	10	10	

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—	SET							
19.12.2	MOUNTING AN/VRC-46 RADIO SET	ACTION	Raise and tighten clamping screws to lock R-T on mount	Use safety wire/scty chain to secure mounting clamps	Assemble & connect antenna	Screw top antenna fully into bottom section	Screw assembled antenna sections onto top of spring mount of matching unit	Connect antenna cable (CX-4722/VRC) between "ANT CONT" connector of R-T and control cable connector of matching unit
	MOU	STEP	11	14	2	2A	2B	2C
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SET							10
MOUNTING AN/VRC-46 RADIO SET	ACTION	Connect antenna (RF) cable (CG-1773A/U) between "ANT" connector of R-T and small "BNC" connector of matching unit	Route cables between R-T and matching unit so mov of equip and psnl does not endanger them	Tie down antenna	Clip V-shaped clamp to middle of upper antenna section	Make sure clamp does not cut into fiberglass on antenna section	19 19 3
MOU	STEP	2D	2E	ဗ	3A	38	

(*) V ED
Lift and position AM-2060(*)/ GRC on mount and carefully slide it back to seat the plug in the mount receptable
Lift and position AM-2050(*) GRC on mount and carefully slide it back to seat the plug in the mount recentacle
slide it k

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MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO	ACTION	Mount amplifier-power supply (AM-2060(*)/GRC)	Make sure mount is clean and grounding straps connect securely between top tray and mounting plate	Screw assembled antenna sections onto top of spring mount of matching unit	Connect antenna control cable (CX-4722/VRC) between amplifier-power supply (AM-2060(*)/GRC) of antenna control connector and control cable connector of matching unit	19.13.1
	STEP	-	1A	18	10	

MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO AN/GRC-160 RADIO Connect antenna (RF) cable (CG-1773A/U) between "ANT" connector of R-T and small "BNC" connector or matching unit E Route cable between R-T and matching unit so movement of equip and pers do not endanger them Mount R-T on AM-2060(*)/ GRC Slide R-T until bottom of battery box contacts bumper plate at rear of amplifier-power supply (AM-2060(8)/GRC)	19		>					
P D D S S S S S S S S S S S S S S S S S	19.13.2	AOUNTING AN/VRC-64 OR AN/GRC-160 RADIO	ACTION	Connect antenna (RF) cable (CG-1773A/U) between "ANT" connector of R-T and small "BNC" connector or matching unit	Route cable between R-T and matching unit so movement of equip and pers do not endanger them	Mount R-T on AM-2060(*)/ GRC	Slide R-T until bottom of battery box contacts bumper plate at rear of amplifier-power supply (AM-2060(8)/GRC)	
<u>o</u>	_		STEP	10	#	8	2A	

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AOUNTING AN/VRC-64 OR AN/GRC-160 RADIO ACTION	Raise clamps and tighten clamping screws to lock R-T on amplifier-power supply	Remove protective cap from "POWER" connector on R-T panel	Connect cable assembly (CX-4655/GRC) between AM-2060(*)/GRC "SET "POWER" connector and R-T power connector	Assemble and connect antenna	Screw top antenna section fully into bottom section
N STEP	28	2C	2D	က	3A

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19.13.4	MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO	ACTION	Be sure clamp does not cut into fiberglass on antenna sections	Pull antenna approximately 60 degrees above ground level and tie to vehicle	Tie down antenna	Clip V-shaped clamp to middle of upper antenna section	Remove rubber receptacle cover	Be sure chain is clear of guide pins and receptacle
		STEP	3B	3C	4	4 A	48	4C
19								

	MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO	
STEP	ACTION	
4D	Lift and position AM-2060(*)/ GRC on mount and carefully slide it back to seat the plug in the mount receptacle	
4E	Raise clamps and tighten clamping screws to lock amplifier-power supply on mount	
4F	Use safety wire or security chain to secure mounting clips	
Notes:		
\bigsqcup_{σ}	19.13.5	

INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO STEP ACTION 1 Installing batteries 1A Release the 2 clamps and remove battery box 1B Inspect radio connector, if it is damaged, have it repaired is damaged, have it repaired to venting of battery box 1C Check function of pressure relief valve by blowing and sucking through the valve for venting of battery box 1D Position battery receptacle over radio connector taking care not to damage battery receptacle	19					
		INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO			 	

19	19.14.4	
		Notes:
	Hook ammo pouch straps to shoulder strap rings	4D
	Hook belt straps to combat belt	Ų
	Adjust shoulder straps for a comfortable fit and good balance	4B
	Place harness on your back with R-T mounted	4A
	Mount assembled radio set on your back	4
>	ACTION	STEP
	INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO	

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19.15.1	OPERATING SECURITY EQUIPMENT TSEC/KY-8	ACTION	Mount and interconnect security equipment	Slide TSEC/KY-8 onto mount and make sure to firmly seat tracks in mount grooves	Pull locking levers outward to lock TSEC/KY-8 in mount	Be sure "POWER" switches for R-T and TSEC/KY-8 are in "OFF" position	Connect and tightly screw secure equipment power cable to "POWER INPUT" receptacle on TSEC/KY-8	
		STEP	1	1A	1B	10	1D	
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OPERATING SECURITY EQUIPMENT TSEC/KY-8	ACTION	Remove cap from "X-MODE" connector receptacle on R-T	Connect interconnecting cable (CS-12920/U) small connector to "X-MODE" receptacle on R-T	Connect other end of inter- connecting cable to "RADIO" receptacle on TSEC/KY-8	Coil and tape/tie extra cable so it is out of the way	Key TSEC/KY-8	Make sure power switch is in "OFF" position	19.15.2
	STEP	1E	_	16	1H	2	2A	

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19.15.3	OPERATING SECURITY EQUIPMENT TSEC/KY-8	ACTION	Release 2 twist-lock fasteners on access door & swing open	Prepare KYK-12/TSEC (sandwich)	Open KYK-12/TSEC like a book	Set various slides according to extract key list	Double check settings	Click each slider into psn	Close KYK-12/TSEC and swing handle around to hinge end
		STEP	2B	က	3A	3B	3C	ав	3E
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OPERATING SECURITY EQUIPMENT TSEC/KY-8	ACTION	Insert current-keyed KYK-12/ TSEC into access opening	Be sure handle and hinge end face outward and data plate is facing up	Carefully slide sandwich into place	Press evenly on both sides to fully seat sandwich	Close access door and secure with 2 twist-lock fasteners	Place system into operation	
	STEP	4	4A	4B	4C	4D	5	

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9.15.5	OPERATING SECURITY EQUIPMENT TSEC/KY-8	ACTION	Turn R-T power switch to "LOW"	Set TSEC/KY-8 "LOCAL- REMOTE" switch to "LOCAL"	Set "PLAIN-CIPHER" switch to "PLAIN"	Set "POWER" switch to "ON"	"POWER" indicator lamp and "RED" indicator lamps must light	Set "PLAIN-CIPHER" switch to "CIPHER"	
(STEP	5A	5B	5C	5D	5E	5F	
19									

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OPERATING SECURITY EQUIPMENT TSEC/KY-8 ACTION	Red "PLAIN" indicator must go off and "GREEN" cipher indicator light must go on	Perform 11-position alarm test	Rotate "ALARM TEST" switch clockwise to each position, then to "OFF"	You will see "RED" light blink on and hear "BEEPS" in each position	Operate secure system	Press push-to-talk switch on radio audio accessory
STEP	5G	9	6A	6B	7	7.A

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19.15.7	OPERATING SECURITY EQUIPMENT TSEC/KY-8	ACTION	You should hear single "BEEP"	If no "BEEP", repeat STEPS 2-5	Begin secure transmission and reception		
(STEP	78	2C	Q.2	Notes:	
19							

			 		
PREPARING TSEC/KY-38 WITH RADIO SET	ACTION	Prepare radio for secure operation	Disconnect cable assembly (CX-4655/GRC) between AM-2060(*)/GRC "SET POWER" connector and R-T "POWER" connector	Connect cable from left side of distribution box (J-2731/GRC) to "SET POWER" connector of AM-2060(*)/GRC	Connect cable from right side of distribution box (J-2731/GRC) to "POWER" connector of RT-841/PRC-77
	STEP	-	41	18	5

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19.16.2	PREPARING TSEC/KY-38 WITH RADIO SET	ACTION	Connect small end of inter- connecting cable assembly (CX-10475/U) to connector (J1) on left rear of distribution box (J-2731/GRC)	Mount and interconnect security equipment	Balance TSEC/KY-38 on front of mount and remove power connector cover on bottom of Z-ACD/TSEC	Ensure that Z-ACD/TSEC circuit breaker is at "OFF", and "ON-OFF" switch on front of MT-3823(*)/GRC is at "OFF"
		STEP	1D	2	2A	2B
6						

WITH RADIO SET ACTION Pass connector of cable assembly (CX-10476/U) through hole in rear plate of MT-3823(*)/GRC Connect cable to connector on Z-ACD/TSEC Set Z-ACD/TSEC secure TSEC/KY-38 on MT-3823(*)/GRC to secure TSEC/KY-38	>	5 5		/er	ω	19
PREPARING TSEC/KY-38 WITH RADIO SET ACTION Pass connector of cable assembly (CX-10476/U) through hole in rear plate of MT-3823(*)/GRC Connect cable to connector on Z-ACD/TSEC Set Z-ACD/TSEC Set Z-ACD/TSEC Frecit breaker to "ON" and slide TSEC/KY-38 into mount Pass power connector cover through hole in rear plate through hole in rear plate Raise and tighten 2 clamps on MT-3823(*)/GRC to secure TSEC/KY-38	WITH RADIO SET ACTION Pass connector of cable assembly (CX-10476/U)	MT-3823(*)/GRC Connect cable to connector on Z-ACD/TSEC	Set Z-ACD/TSEC circuit breaker to "ON" and slide TSEC/KY-38 into mount	Pass power connector cover through hole in rear plate	Raise and tighten 2 clamps on MT-3823(*)/GRC to secure TSEC/KY-38	19.16.3
2C 2D 2D 2F 2F 2G	STEP 2C	2D	2E	2F	2G]6

PREPARING TSEC/KY-38 WITH RADIO SET STEP ACTION 2H Connect large end of inter- connecting cable assembly (CX-10475/U) to "RADIO CONNECTOR" on TSEC/ KY-38 2I Mount amplifier, audio frequency (AM-4979/GR), in speaker mounting bracket 2J Connect power cable (CX-11761/U) to "POWER" connector of AM-4979A/GR 2K Connect AM-4979A/GR cable to "AUDIO" connector of TSEC/KY-38	တ	.					
2K 22 21 2H P P P P P P P P P P P P P P P P P P	_		>				
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	19.16.4	PREPARING TSEC/KY-38 WITH RADIO SET		Connect large end of inter- connecting cable assembly (CX-10475/U) to "RADIO CONNECTOR" on TSEC/ KY-38	Mount amplifier, audio frequency (AM-4979/GR), in speaker mounting bracket	Connect power cable (CX-11761/U) to "POWER" connector of AM-4979A/GR	Connect AM-4979A/GR cable to "AUDIO" connector of TSEC/KY-38
	_		STEP	2H	21	2J	2K
	19						

75	19.16.5
	Recheck settings
	Set various slides according to extract key list
	Push locking levers on sides to rear (unlock) psn
	Open KYK-28/TSEC by releasing lock on right side with data plate facing up
	Prepare KYK-28/TSEC
	Connect radio handset to "AUDIO" connector of the AM-4979A/GR
>	ACTION
	PREPARING TSEC/KY-38 WITH RADIO SET

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T		>						
19.16.6	PREPARING TSEC/KY-38 WITH RADIO SET	ACTION	Pull locking levers on sides forward to lock position	Close and secure lock	Check gate mechanism by forcing gate back to expose keying pins	Key TSEC/KY-38	"OFF-PLAIN-CIPHER" should be at "OFF" position	Open access cover and align guide pins of KYK-28/TSEC with guide pin holes of TSEC/KY-38
		STEP	3E	3F	3G	4	4A	4B
19								

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Secure access door of TSEC/KY-38		19.16.7
	Secure access door of TSEC/KY-38 Notes:	19

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19.17.1	OPERATING TSEC/KY-38 WITH RADIO SET	ACTION	Place system into operation	Set radio switches & controls	Set AM-2060(*)/GRC "POWER" switch to "ON" and "SPKR" switch to "OFF"	Set distribution box (J-2731/ GRC) circuit breaker to "ON"	Turn R-T function switch to "ON" or "SQUELCH", as authorized in unit SOP	Refer to CEOI extract and set operating frequency of net	
(STEP	ļ	2	2A	2B	2C	2D	
19									

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OPERATING TSEC/KY-38 WITH RADIO SET	ACTION	Set R-T "VOLUME" control fully clockwise	Set secure equip switches and controls	Set MT-3823(*)/GRC "ON-OFF' switch to "ON"	Set AM-4979A/GR power switch to "ON"	Set KY-38 power switch to "CIPHER" and "VOLUME" control to approximately midrange	Set "DELAY" switch to "IN"	19 17 9
	STEP	2E	က	3A	38	30	3D	

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19.17.3	OPERATING TSEC/KY-38 WITH RADIO SET	ACTION	Operate secure system	Press press-to-talk switch on handset	Do you hear multitone signal followed by final beep tone, then no tone? If YES, go to STEP 6. If NO, go to STEP 5.	System failure exists	Zeroize KY-38 using "ZEROIZE" lever	Re-key using KYK-28	Adjust system volume controls	
		STEP	4	4A	4B	5	5A	5B	9	
19									***************************************	

19	19.17.4	
	Unlock and open KYK-28	10A
	Zeroize KYK-28	10
	Being secure transmission and reception	6
	Press push-to-talk switch on handset	ω
	Set delay switch to "OUT"	7
	For "PLAIN" operation, adjust "VOLUME" control on R-T	6B
	For "CIPHER" operation, adjust "VOLUME" control on KY-38	6A
>	ACTION	STEP
	OPERATING TSEC/KY-38 WITH RADIO SET	

19							
Τ-							
19.17.5	OPERATING TSEC/KY-38 WITH RADIO SET	ACTION	Push 2 locking levers to rear	Move all slides to the "ZEROIZE" position	Pull locking levers forward	Close and lock KYK-28	
_		STEP	10B	10C	10D	10E	Notes:
19		7				<u></u>	

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	S	PAGE	20.2.1 20.2.1 20.3.1	
	LAW OF WAR/POW TABLE OF CONTENTS	ITEM	Principles of the Law of War Handling prisoners of war Handling captured documents/ equipment	20.0.1
				20

4R	>			<u> </u>					70
PRINCIPLES OF THE LAW OF WAR	PRINCIPLE	Weapons and ammo	All US/NATO issued weapons and ammo are lawful	Do not alter weapons/ammo	Tactics	Do NOT fake surrender, use enemy marked vehicles/ uniforms, or boobytrap dead or wounded personnel	Only use medical symbols for medical activities	Attack ONLY combat targets	200
PRIN	ITEM	-	1A	18	2	2A	28	က	
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20.1.2	PRINCIPLES OF THE LAW OF WAR	PRINCIPLE	Only use firepower your mission requires	Avoid needless destruction	These are NOT combat tgts	Civilians/soldiers who give up, you capture, or are sick and wounded	Medical personnel, vehicles, and facilities	Undefended civilian bldgs	Historical monuments	Hospitals
	PRIN	ITEM	3A	3B	4	4A	4B	4C	4D	4E
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PRINCIPLES OF THE LAW OF WAR	PRINCIPLE	Protected property marking	Red Cross/Crescent/Lion/ Star of David on white back	Blue and white shield in Europe	Treat captives, civilians, and property on battlefied according to Law of War	Allow enemy soldiers to give up	Treat all captives as POWs	Protect from violence, sexual abuse, and intimidation	20.1.3
A PRINCE	ITEM	2	5A	5B	9	7	8	8A	
									202

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20.1.4	PRINCIPLES OF THE LAW OF WAR	PRINCIPLE	Provide food, water, shelter, and medical treatment	Safeguard from dangers of combat	Evacuate ASAP	Do NOT use to clear or plant mines/boobytraps, as shield/ screen, or as hostages	Treat all civilians humanely	Do NOT use physical force/ mental confusion	Protect women from forced prostitution/rape/sexual assault
	PRIN	ITEM	8B	8C	8D	8E	6	9 6	9B
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17EM PRINCIPLE 9C Prohibit reprisals/hostage taking/collective punishment 10 Property on battlefield	Tag and turn in all enemy military property to chain of command for evacuation	Do NOT seize, steal, or loot civilian, POW needed military equipment, or personal property	Identify violations of law of war or illegal orders	Report all violations by friendly or enemy troops	
9C 10	10A	10B	11	12	

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20.1.6	PRINCIPLES OF THE LAW OF WAR	PRINCIPLE	Violations of Law of War are criminal acts under UCMJ	If you believe Law of War is being violated, do your best to stop it	State you disagree with act	Use moral judgments	Clarify unclear orders	Threaten to report the act	Ask senior soldier to stop act	Refuse to obey an order to commit a criminal act	
	PRIN	ITEM	13	14	14A	14B	14C	14D	14E	14F	
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7	AR															
20.2.1	HANDLING PRISONERS OF WAR	ACTION	Search	Remove all wpns/documents	Return personal items	Leave helmet/NBC gear	Segregate	Break chain of command	Separate by rank/sex	Separate military/civilians	Silence-do not allow talking	Speed-POW from battle area	Safeguard	Prevent escape	Prevent harm	
	HAN	ITEM	1	1A	18	10	2	2A	2B	2C	က	4	5	5A	5B	
20																•

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HANDLING CAPTURED DOCUMENTS/EQUIPMENT	ACTION Documents	Official-maps, orders, awards, records, passes, and leaves	Personal-letters, diaries, pay records	Equipment-all nonsurvival items	TAG OR MARK ALL ITEMS	Date and time of capture	Place of capture	Capturing unit	20.3.1
D	ITEM 1	1A	18	2	က	3A	3В	3C	

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20.3.2	HANDLING CAPTURED DOCUMENTS/EQUIPMENT	ACTION	Circumstances of capture		• • • • • • • • • • • • • • • • • • • •
		ITEM	3D	Notes:	
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SUPPLIES/LOGISTICS TABLE OF CONTENTS	Supplies and logistical services Pre-combat checks Combat effectiveness graphics Selected information graphics Classes of supply and map symbols Collecting points and other symbols	21.0.1
		21

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7	S	PAGE	
1.0.1	SUPPLIES/LOGISTICS TABLE OF CONTENTS	ITEM	
7	<u> </u>	<u> </u>	

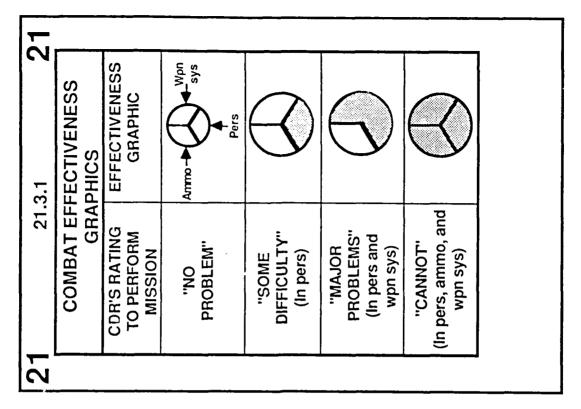
>							
SUPPLIES AND LOGISTICAL SERVICES PRINCIPLE	Pit logistics includes supply/ transportation/maintenance	Chain of command must be concerned with supply status and equipment for fighting	Plt logistics requires	Short-term plans to accomplish present mission	Long-term plans to insure continuous operation of plt	Co XO directs co log services	Squad leader coord/supv squad logisitics
ITEM	-	2	3	3A	3В	4	5

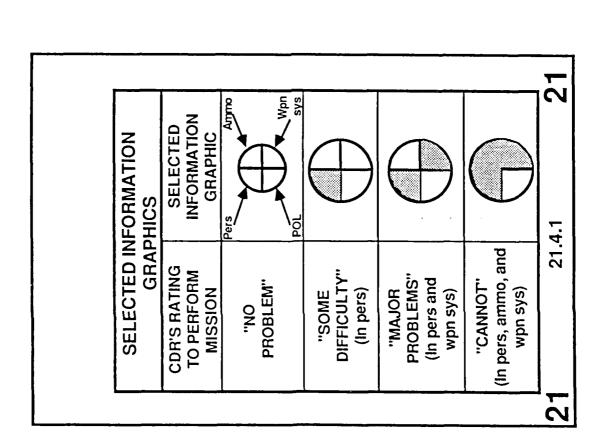
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21.1.2	SUPPLIES AND LOGISTICAL SERVICES	PRINCIPLE	PSG coord/supv plt log by	Getting requests for supplies/ equip from SLs and plt Idrs	Reviewing and consolidating requests	Giving consolidated list to co XO or supply sergeant	PSG must	Maintain status of supplies and equipment in plt	Monitor status of requests given to XO and supply sergeant
		ITEM	9	6A	В9	၁၅	2	7A	78
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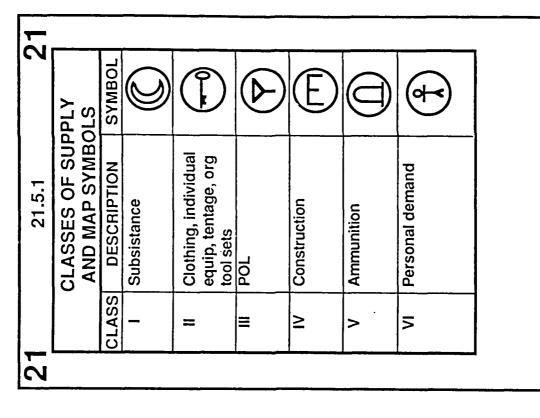
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SUPPLIES AND LOGISTICAL SERVICES	PRINCIPLE	Routinely report status of plt supplies and equip to plt Idr	SL is responsible for maintenance of squad equip	PSG coordinates/supervises plt maintenance with XO	When equip needs repair	Turn commo equip into commo chief	Turn wpns into co armorer	Turn any other equip into co supply sergeant	21.1.3
	ITEM	3 2	8	6	10	10A	10B	10C	
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21				_					
7									
21.2.1	PRE-COMBAT CHECKS	ACTION	Complete prepare-to-fire checks (ATGM, cannon, mg, SAW, etc)	Complete before operations PMCS and resolve problems	Load vehicles/rucksacks per loading plans	Clean and function check individual and crew-served weapons	"Top-off" vehicles with class III	Properly stow basic load of classes I and V	
		ITEM	-	2		4	5	. .	
21									

	>								
PRE-COMBAT CHECKS	ACTION	Fill canteens; water and oil cans (if applicable)	Index battlesights	Set radios on frequency	Check radios' operation (only when authorized)	Set speech security equipment	Check speech security equipment operation (only when authorized)	Check unit for proper uniform	Brief unit on mission
	ITEM	7C	8	6	10	11	12	13	14

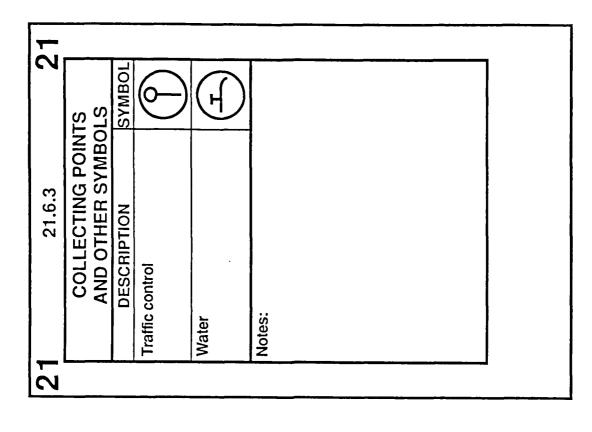


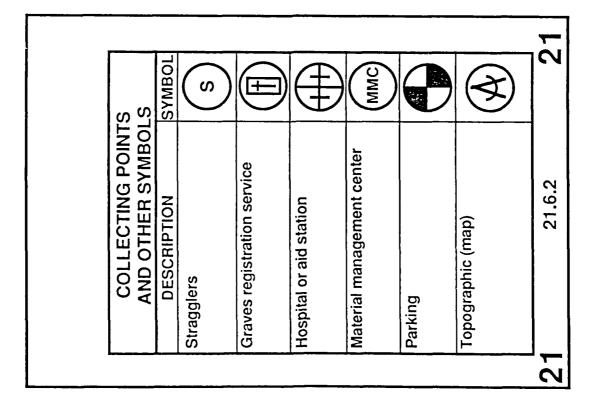




7		21.5.2	
		Multiple classes of supply, but not all	
	\bigcirc	All classes of supply	
	(CA)	Materiel to support nonmilitary programs	×
	₿	Repair parts	×
	\bigoplus	Medical materiel	III A
		Major end items	ΙΙΛ
	SYMBOL	DESCRIPTION	CLASS
	۲۲ LS	CLASSES OF SUPPLY AND MAP SYMBOLS	0

COLLECTING POINTS AND OTHER SYMBOLS DESCRIPTION SYMBOL Cannibalization Cannibalization Civilian Civili	21		 .		,				
COLLECTING POINTAND OTHER SYMBO AND OTHER SYMBO DESCRIPTION Cannibalization Civilian Civilian Civilian Civilian Maintenance Prisoners of War Salvage		rs LS	SYMBOL	CAN	CIV	DECON		EPW)	SALV
	21.6.1	COLLECTING POIN AND OTHER SYMBO	DESCRIPTION	Cannibalization	Civilian	Decontamination station (place personnel (PERS) or equipment (EQUIP) or both below symbol)	Maintenance	Prisoners of War	Salvage



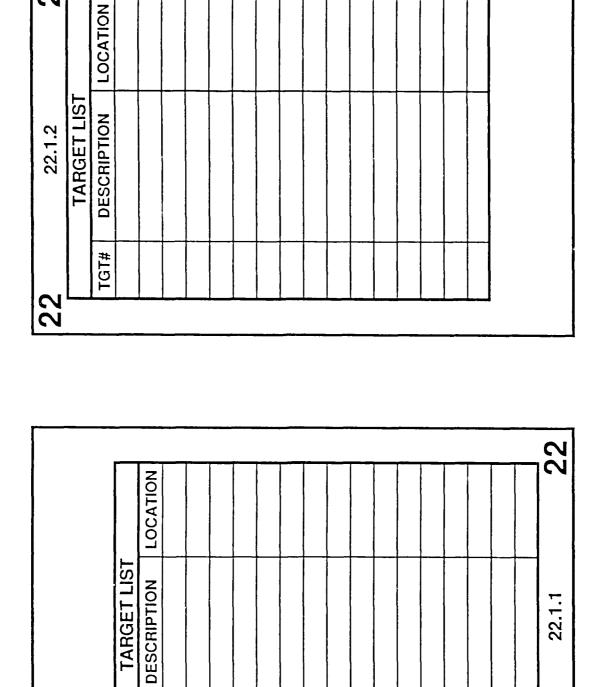


<u> </u>																				_	22
S	PAGE	22.1.1	22.2.1	(22.3.1		22.4.1	22.5.1		22.6.1	22.7.1	22.8.1	22.9.1	22.10.1		22.11.1		22.12.1			
FIRE SUPPORT TABLE OF CONTENTS	ITEM	Target list	Principles of fire support	planning	Principles of fire support	coordination	Artillery/mortar communications	Artillery/mortar support	planning	Artillery/mortar call for fire	Artillery weapon capabilities	Mortar weapon capabilities	Artillery/mortar smoke request	Artillery/mortar smoke height	of burst corrections	Artillery/mortar illumination	request	Artillery/mortar illumination	factors		22.0.1
•																					22

22																		
2	S	PAGE	22.13.1	22.14.1	22.15.1		22.16.1	72.17.1	7	22.18.1	22.19.1	-	22.20.1		22.21.1		22.22.1	
22.0.2	FIRE SUPPORT TABLE OF CONTENTS	ITEM	Artillery counterfire information form (ACIF)	Close air support request	Close air support control	communications	Close air support planning	Immediate close air support	request	Close air support brief given	Beacon bombing information	for USN/USMC A-6	Beacon bombing information	for USAF F-111	Beacon bombing information	for USAF F-16	Beacon bombing information	for USAF/USN/USMC F-4
22		l					_			_					<u> </u>			

	FIRE SUPPORT		
	TABLE OF CONTENTS	rs S	
	ITEM	PAGE	
	Aircraft delivered ordnance	22.23.1	
	Joint air attack team (JAAT)	22.24.1	
	communications		
	Attack helicopter weapons	22.25.1	
	capabilities	_	
	Naval gunfire communications	22.26.1	
	Naval gunfire support planning	22.27.1	
	Naval gunfire call for fire	22.28.1	
	Naval gunfire message to	22.29.1	
	observer		
	Naval gunfire weapons	22.30.1	
	capabilities		
	Naval gunfire illumination	22.31.1	
	factors		
	Light data	22.32.1	
22,	22.0.3	2	22

22			
	S	PAGE	
22.0.4	FIRE SUPPORT TABLE OF CONTENTS	ITEM	
22			



#LD1

		PRINCIPLES OF FIRE SUPPORT PLANNING		
•	ITEM	PRINCIPLE	>	
	-	Plan early and continuously		
,	8	Use all targeting resources available		
<u> </u>	က	Consider use of all available fire support		
<u> </u>	4	Select the most effective fire support means		
	5	Avoid unneeded duplication		
•	9	Provide flexibility		
·	7	Provide safe fires		
<u> </u>	Notes:			
22		22.2.1	78	22

22									_		
2		>									
22.3.1	PRINCIPLES OF FIRE SUPPORT COORDINATION	PRINCIPLE	Insure continuous targeting	Consider the use of all available fire support means	Use the lowest echelon capable	Use the most effective type of support	Furnish the type of support requested, when practical	Avoid unneeded duplication	Coordinate airspace	Safeguard friendly elements	
	0,	ITEM	1	2	က	4	5	9	7	8	
22											

<u>1</u>								
ARTILLERY/MORTAR COMMUNICATIONS	Agencies:	Observer to artillery/mortars	Nomenclature:	Conduct of fire net (USMC) Fire direction net/Fire control net (Army)	Frequencies:	30.00—75.95 MHz VHF-FM	Compatible equipment:	USMC—PRC-77, VRC-12 Army—PRC-77, VRC-12 USAF—PRC-77, VRC-46

	7/	22.5.1	77
		ARTILLERY/MORTAR SUPPORT PLANNING	
		Supporting unit	
		If they are unavailable or direct commo is unavailable, unit through which you will request support	
		Call sign	
		Frequency	
		Period effective from to	
		Notes	
<u>-</u>			
<u>-</u>			

22 22.6.1 22
"Direction (mils/degrees)" "Distance (meters)" "Up/down (meters)"
B. By polar plot:
"Grid "Direction (observer to target) (mils/degrees)"
A. By grid coordinate:
3. (Location of target) (Select best way)
2. (Warning order) " (adjust fire/fire for effect, etc)"
1. (Observer ID) " This is

22		Γ	. 1 1		
22.6.2	ARTILLERY/MORTAR CALL FOR FIRE	C. By shift from known point:	"Shift (TRP#) "Direction (mils/degrees)" (Lateral shift) "Left/right (meters)" (Range shift) "Add/drop (meters)" (Vertical shift) "Up/down (meters)" 4. (Target description) "	5. (Method of engagement) A. (Type of adjustment) "(adjust fire/fire for effect, etc)"	
22					

ARTILLERY/MORTAR CALL FOR FIRE B. (Trajectory) " (high/low angle) C. (Ammo) " (HE, WP, ICM, etc D. (Distribution of fire) " (at my comd, when ready, TOT MESSAGE TO OBSERVER Units to fire Changes to call for fire Number of rounds 22.6.3		l:			الم		.]. .]	<u> </u>		22
	ARTILLERY/MORTAR CALL FOR FIRE	i i	(Ammo) "(HE, WP, ICM, etc)"	. (Distribution of fire) "	(Method of fire and control) "(at my comd, when ready, TOT)"	MESSAGE TO OBSERVER	nanges to call for fire		Imber of rounds	22.6.3

22																								
7			MLRS	M270		30000	ш	DPICM								30000	Ε	13	mdı	I				
	NOc		203	M110	A2	22900	ш	ЭН	HES	CM	DPICM	CHEM	RAP	NUC		30000	٤	0.5	mdi	PD, TD	VT, MT	MTSQ	ဌ	
.1	WEAF	LITIES	155	M198		22400	ш	нЕ, WP	ICM, HC	CPHD	DPICM	CHEM	RAP	ILLUM	NUC	30000	E	2	ndı	рр, тр	VT, MT	MTSQ	ರಿ ರ	
22.7.1	ARTILLERY WEAPON	CAPABILITIES	155	M109	A3	18100	ш	нЕ, МР	~	CPHD	DPICM	CHEM	RAP	ILLUM	NUC	23500	Е	1	mdı	PD, TD	VT, MT	MTSO	ಕ್ರಿ	
	ARTII	S	105	M102		12400	ш	HE, WP	ICM, HC	HEP-T	APERS	CHEM	RAP	ILLUM		15100	E	က	шси	РВ, ВВ	VT, MT	MTSQ	පි	
			WPN	Model		Max	rng	Ammo			•					RAP	rng	Sust	rate	Fuze				
22												_												

									_		,						
	107	M30	6840	Ή	5650	ΜM	CHEM	5490 ILLUM	770	뿦	18	щd	က	mdı	PT	Υ	
Z O	81	M252	4789	里	4737	WP	3150	ILLUM	72	뷔	30	md	15	mdı	PD	<u></u>	
VEAP(LITIES	81	M29 E1	4789	뽀	4737	WP	3150	ILLUM	72	HE	30	md	8	rpm	PD	ΙΛ	
MORTAR WEAPON CAPABILITIES	81	M29	4789	뽀	4737	WP	3150	ILLUM	72	뷔	27	md	4	щd	PD	<u></u>	
M O O	09	M224	3490	뽀	1472	WP	931	ILLUM	70	뽀	30	udi	8	mdı	Multi	option	
	WPN	Model	Max	Ē) E	and	ammo	· -	Min	E E	Max	rate	Sust	rate	Fuze		

1. "4 Alph." 3. (7 WP (WP than than Win Win Smc	ARTILLERY/MORTAR SMOKE REQUEST	1. "This isAlpha Foxtrot"	2. "Grid"	(Target description) "	"Smoke/WP in effect"	Notes: For smoke of extended duration (WP more than 2 minutes or HC more than 5 minutes), send:	Target length ""	Wind speed "	Smoke duration desired ""	
---	-----------------------------------	---------------------------	-----------	------------------------	----------------------	---	------------------	--------------	---------------------------	--

ARTILLERY/MORTAR SMOKE HEIGHT OF BURST CORRECTIONS 1. If round bursts on the ground, send: "Up 100" 2. If the smoke cannisters bounce on the ground, send: "Up 50" 3. If the smoke cannisters are too spread out, send: "Down 50" Notes:

22		·									
22.11.1	ARTILLERY/MORTAR ILLUMINATION REQUEST	1. "This is	2. "Grid"	3. (Target description) "	(Illumination/coordinated illumination)"	4. "Direction right/left add/drop up/down "	5. "Lateral/range spread"	Notes:	Send command "Illumination Mark" when the target receives the maximum light.	Send range and deviation corrections in 200 m increments.	
22											

1.2	22.11.2		22
		Notes:	
e for HE.	then send a call for fire for HE.	then send a	
ed Illuminatio	command "Coordinated Illumination" and	command "	
ract send th	Once you verify the target send the	אי ווסאי פטייט	
crements.	corrections in 50 m increments.	corrections	<u>, </u>
(uniop/un	(amob)an) tering to their bases	Cond boight	
	tinued):	Notes (continued):	
N REQUES	ILLUMINATION REQUEST	ILLUN	1
MORTAR	ARTII I FRY/MORTAR	AR	L

TILLERY COU ORMATION F 1. SHELREP, h BOMBRE tion of observer tion of observer tion of flash, sou tion of stack and the flash, sou sto " sto " shelled " shelled " 1 shelled "	rerfire IM (ACIF) TREP,	:	TM grid) " (encode)	ind, or groove (mils/degrees)"	" (DTG)	" (DTG)	(epcode)	=	22
	ARTILLERY COUNTINE INFORMATION FOR Section 1. SHELREP, MOI	BOMBREP A. From (Call sign) "This is	B. Position of observer (U	C. Azimuth of flash, sound	D. Time from "	E. Time to "	F. Area shelled "	G. Number/nature of guns	22.13.1

ARTILLERY COUNTERFIRE INFORMATION FORM (ACIF) H. Nature of fire "" I. Number/type/caliber of shells "" J. Flash to bang time "" (sec)" K. Damage "" (encode) Section II. Location of hostile weapons L. From and time "" M. UTM coordinates "" N. Source and accuracy "" O. Time active ""	ARTILLERY COUNTERFIRE INFORMATION FORM (ACIF) Nature of fire " (sec)" Flash to bang time " " (encode tion II. Location of hostile weapons From and time " " UTM coordinates " " Source and accuracy " "	ARTILLERY COUNTERFIRE INFORMATION FORM (ACIF) Nature of fire " (sec)" Flash to bang time " " (encode tion II. Location of hostile weapons From and time " " UTM coordinates " " Source and accuracy " Time active " Time active " "	ARTILLERY COUNTERFIRE INFORMATION FORM (ACIF) Nature of fire "" (sec)" Flash to bang time "" (encode ction II. Location of hostile weapons From and time "" UTM coordinates "" Source and accuracy "" Time active "	77.	22.13.2	77
Nature of fire "	Nature of fire "(sec)" Flash to bang time " (sec)" Ction II. Location of hostile weapons From and time "	Nature of fire "	Nature of fire "(sec)" Flash to bang time "" (encode tion II. Location of hostile weapons From and time "" UTM coordinates "" Source and accuracy "" Time active "		ARTILLERY COUNTERFIRE INFORMATION FORM (ACIF)	
Vumber/type/caliber of shells " (sec)" Flash to bang time " " (encode ction II. Location of hostile weapons From and time " " " UTM coordinates " " " " Source and accuracy " " Time active " "	Vumber/type/caliber of shells " (sec)" Flash to bang time " " (encode ction II. Location of hostile weapons From and time " " " Source and accuracy " " Time active " "	Vumber/type/caliber of shells " (sec)" Flash to bang time " (encode ction II. Location of hostile weapons From and time " (number of the condinates " (number of the con	Vumber/type/caliber of shells " (sec)" Flash to bang time " " (encode ction II. Location of hostile weapons From and time " " " Source and accuracy " " " Time active " "			~
Flash to bang time " (sec)" Damage " " (encode ction II. Location of hostile weapons From and time " " Source and accuracy " " Time active "	Flash to bang time " (sec)" Damage " " (encode ction II. Location of hostile weapons From and time " " UTM coordinates " " Source and accuracy " "	Flash to bang time " (sec)" Damage " " (encode ction II. Location of hostile weapons From and time " " Source and accuracy " " Time active " "	Flash to bang time " (sec)" Damage " " (encode ction II. Location of hostile weapons From and time " " Source and accuracy " " Time active " "		Number/type/caliber of shells "	
Damage " " (encode ction II. Location of hostile weapons From and time " " " Source and accuracy " " Time active " "	Damage "" (encode ction II. Location of hostile weapons From and time "" UTM coordinates "" Source and accuracy ""	Damage " " (encode ction II. Location of hostile weapons From and time " " " " " " " " " " " " " " " " " " "	Damage " " (encode ction II. Location of hostile weapons From and time " " " " " " " " " " " " " " " " " " "			
ction II. Location of hostile weapons From and time "	ction II. Location of hostile weapons From and time "	ction II. Location of hostile weapons From and time "	ction II. Location of hostile weapons From and time "		Damage "	
From and time "	From and time "	From and time "	From and time "		Section II. Location of hostile weapons	
					M. UTM coordinates ""	
O. Time active "	O. Time active ""	O. Time active ""	O. Time active ""			
					O. Time active "	

Compatible equipment: USMC—PRC-104, GRC-193, MRC-138, 30.00—75.95 MHz VHF-FM Secondary **CLOSE AIR SUPPORT REQUEST** Tactical Air Request Net (USMC/USN) Army—GRC-106, PRC-77, PRC-104, GRC-193 USAF-PRC-104, VRC-46, PRC-77 DASC/TACC/SACC (USMC/USN) COMMUNICATIONS Agencies: TACP to ASOC (USAF) Air Request Net (USAF) 2-30 MHz HF Primary Nomenclature: Frequencies: **PRC-77** 22.14.1

		22	
		L	
	CLOSE AIR SUPPORT CONTROL	<u> </u>	Suppor
	Agencies:		If they a lis unav
	FAC to fighter/attack aircraft		Will req
	Nomenclature:		Call Sig
	Tactical Air Direction Net		Freque
	Frequencies:		reriod
	225—400 MHz UHF Primary 30.00—75.95 MHz VHF-FM Secondary	 	Notes
	Compatible equipment:		
	USMC—PRC-75, PRC-77 Army—VRC-12, PRC-77, VRC-24 USAF—PRC-66, MRC-107/108, PRC-77, GRC-206, PRC-113, VRC-46		
22	22.15.1		

77					<u> </u>					
22.16.1	CLOSE AIR SUPPORT PLANNING	Supporting TACP	If they are unavailable or direct commo lis unavailable, unit through which you will request support	Call sign	Frequency	Period effective from to	Notes			
77.										

22.17.1	22
Not transmitted.	6. Not
5. (Time on target) "(ASAP or time)"	5. (Tim
4. (Target location) " (UTM coordinates)", (elevation) " (feet)"	4. (Tar coordii (feet)"
3. (Target is) "(type/quantity)"	3. (Tar
2. "Immediate"	2. "Imr
1. "This is with an immediate CAS request." (Wait for acknowledgement.)	1. "with an for ack
IMMEDIATE CLOSE AIR SUPPORT REQUEST	_

IMMEDIATE CLOSE AIR SUPPORT REQUEST 7. (Final control) "Call sign "Frequency "Contact point or IP "Contact point or IP "Friendly location "Weather "Threats "Threats "Notes:	22.17.2	22
sign	IMMEDIATE CLOSE AII SUPPORT REQUEST	
sign	7. (Final control)	
act point or IP	"Call sign	=
"Contact point or IP	"Frequency	=
8. Remarks: (examples) "Friendly location" "Weather"" "Threats" " Notes:	"Contact point or IP	=
"Weather " "Threats " Notes:	8. Remarks: (examples)	
"Weather " "Threats " Notes:	"Friendly location	=
"ThreatsNotes:	"Weather	:
Notes:	"Threats	=
	Notes:	

	22	22.18.1	22
		(6. Target location) " (LATitude/LONGitude/UTM/offsets/visual)	
Note: numb		(5. Target description) ""	
(time plus		(4. Target elevation) " (Feet above or below mean sea level)	
lliau)		(3. Distance (IP to target) " (Nautical miles)	
for sp		(2. Heading (IP to target) "" (MAGnetic) (Offset:) "Left/Right"	
Note:		(1. Initial point (IP)) ""	
(8. L((9.)"		This is (your call sign) CAS briefing follows:"	·
(7. T		CLOSE AIR SUPPORT BRIEF GIVEN TO THE AIRCRAFT	
ပ _			
22			

CLOSE AIR SUPPORT BRIEF GIVEN TO THE AIRCRAFT (7. Type mark) " (WP, beacon, laser)" (8. Location of friendlies) " " " " (9.) "Egress " " " " " " (7. Type mark) " " " " (9.) "Egress " " " " " " (9.) "Egress " " " " " " (1.) "Specific aircraft types. (1.) " (1.) "Standby " " " " or (1.) "Standby " " " " or (1.) "Standby " " " " " " " or (1.) "Standby " " " " " " or (1.) "Standby " " " " " " or (1.) " Standbar" " " " " or (1.) "Standby " " " " " " " " " " " " " " or (1.) "Standby " " " " " " " " " " " " " " " " " " "	22								_
	22.18.2	CLOSE AIR SUPPORT BRIEF GIVEN TO THE AIRCRAFT	(8. Location of friendlies) ""	(9.) "Egress"	Note: See next pages for additional line numbers that apply to beacon bombing for specific aircraft types.	(Remarks) "	to tgt (TTT) "Standby(sec) hack"	Note: Omit data not required. Omit line numbers. Units of measure are standard.	

AND AND THE CONTROL OF THE PROPERTY OF THE PRO

BEACON BOMBING INFORMATION FOR USN/USMC A-6	IATION
(10. Beacon to tgt) "Bearing (MAGnetic)" or "Beacon grid	=
(11. Beacon to tgt) "Range (meters)" or "Tgt grid	=
(12.) "Beacon elevation (Feet-mean sea level)	:
Notes:	
	
22.19.1	

77							
22.20.1	BEACON BOMBING INFORMATION FOR USAF F-111	(10. Beacon to tgt) "Bearing" (True)	(11. Beacon to tgt) "Range" (Feet)	(12.) "Beacon grid	(13.) "Target grid (LATitude/LONGitude)	(14.) "Beacon delay" (Feet)	Notes: • F-111 A/E requires lines 10 and 11 • F-111 D requires lines 10 and 11 or lines 12 and 13 • F-111 F requires line 14 and either lines 10 and 11 or lines 12 and 13
\sim							

BEACON BOMBING INFORMATION FOR USAF F-16	RMATION
(10. Beacon to tgt) "Bearing(True)	:
(11. Beacon to tgt) "Range (Feet)	:
(12.) "Beacon elevation(Feet-mean sea level)	=
(13.) "Target elevation (Feet-mean sea level)	=
(14. Beacon) "Time delay(Microseconds)	=
Notes:	

BEACON BOMBING INFORMATION FOR USAF/USN/USMC F-4 (10. Beacon to tgt) "Bearing "" (11. Beacon to tgt) "Range "" (12.) "Beacon grid (LATitude/LONGitude) (13.) "Target grid (LATitude/LONGitude) (14. Offsets) "North-South "" (15. Offsets) "East-West "" (16.) "Beacon elevation "" (16.) "Beacon elevation "" (16.) "Beacon elevation "" (16.) "Beacon elevation ""
NFORMATION USMC F-4 ring " Ige " Ith "
BEACON BOMBING INFORM FOR USAF/USN/USMC F (10. Beacon to tgt) "Bearing— (11. Beacon to tgt) "Range— (Nautical miles) (12.) "Beacon grid (LATitude/LONGitude) (13.) "Target grid (LATitude/LONGitude) (14. Offsets) "North-South— (True feet) (15. Offsets) "East-West— (True feet) (16.) "Beacon elevation— (Feet-mean sea level)

99 22.22.2 99
Notes:
Notes: • F-4 AN/ARN-101 requires lines 16 and 17 AND lines 10 and 11, or lines 12 and 13, or lines 14 and 15 • All other F-4s require lines 14, 15, 16, and 17
(17.) "Target elevation (Feet-mean sea level)
BEACON BOMBING INFORMATION FOR USAF/USN/USMC F-4

22											
CA		DIST (m)	0.1% P ₁	425	375	·	200	500	500	500	*
	IVERED SE	MIN SAFE DIST (m)	10% P ₁	250	100	*	275	275	275	225	*
22.23.1	AIRCRAFT DELIVERED ORDNANCE	DESCRIPTION	!	500# Bomb	500# Bomb (retarded)	500# Bomb (GBU-12)	1000# Bomb (retarded)	1000# Bomb	1000# Bomb (GBU-16)	2000# Bomb	2000# Bomb (GBU-10/22)
•	AIF	ITEM		MK-82 LD	MK-82 HD	MK-82 LGB	MK-83 HD	MK-83 LD	MK-83 LGB	MK-84 LD	MK-84 LGB
22											

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All	AIRCRAFT DELIVERED	IVERED		
	ORDNANCE)E		
ITEM	DESCRIPTION	MIN SAFE DIST (m) 10% P ₁	DIST (m) 0.1% P ₁	
MK 20 **	Rockeye (anti-armor CBU)	•	*	
MK 77	500# Napalm	0	150	
CBU-55/77	Fuel-Air- Explosive (FAE)	•	•	
CBU-XX **	Cluster Bomb Units (all types)	*	•	
2.75" FFAR	Rocket with various warheads	100	175	
5" FFAR	Zuni with various warheads	•	*	
SUU-11	7.62mm Mini-Gun	*	*	
M-4, 12, 61, SUU-23	20mm Gatling Gun	*	•	
22	22.23.2		2	$\overline{2}2$

22										
2		MIN SAFE DIST (m)	0.1% P ₁		•	•	500	•	200	
	IVERED Se	MIN SAFE	10% P.		*	•	275	•	275	
22.23.3	AIRCRAFT DELIVERED ORDNANCE	DESCRIPTION	25mm Gun	2311111 2011	30mm Gatling Gun	Maverick (TV, IIR, laser guided)	Walleye I (1000# bomb, TV guide)	Walleye II (2400# bomb, TV guide)	Skipper (100# Bomb, laser guided, rocket boosted	
	AIF	ITEM	GA11-12	21.000	GPU-5A, GAU-8	AGM-65A/ B/C/D/E/F	MK-21/29	MK-23/30	AGM-123A	Notes:
22										

JOINT AIR ATTACK TEAM (JAAT) USMC-PRC-77, VRC-12, PRC-75 Army—PRC-77, VRC-12, VRC-24 USAF—PRC-77, VRC-46, PRC-66 121.00—143.95 MHz VHF-AM 30.00—75.95 MHz VHF-FM COMMUNICATIONS Compatible equipment: PRC-113, MRC-107/108 225-400 MHz UHF FM 1—Ground to air FM 2—Air-to-air UHF-Air-to-air Nomenclature: Frequencies: 22.24.1 22

required in an assault within a 5-minute period after

the attack.

Notes:

The probability of incapacitation (P₁) means a soldier is unable to perform the bodily function

soldier, wearing winter clothing and a helmet.

Within the context of this table, the 5-minute assault criterion has been applied to a prone

Mininum safe distances are based on the weapon's

fragmentation pattem.

Minimum safe distances are to be determined.

Notes:

AIRCRAFT DELIVERED ORDNANCE

** Not recommended for use near troops in

contact.

NAVAL GUNFIRE COMMUNICATIONS	Agency:	Observer to ship	Nomenclature:	Naval gunfire (NGF) ground spot net	Frequency:	-30 MHz HF	Compatible equipment:	USMC—PRC-104, GRC-193, MRC-138 Army—GRC-106, GRC-193 USAF—PRC-104, MRC-107/108, GRC-206	
NAVA		Obse	Nom	Naval gunfire (N	Fre	2—3	Compatil	USMC—PRC-10 Army—GR USAF—PRC-	

	22
Period effective from to to to	22 22.27.1

22	22.28.2	22 _L
=	*4. (Target description) "	
	(meters)" "Vertical shift (Up/Down) (meters)"	
"(mils/degrees)"	ference point_n n shift (left/right) hift (add/drop	
	C. By Shift From Known Point:	<u> </u>
(mils/degrees)" (meters)"	"Direction (mils/c"Distance "Vertical shift (up/down) (meters)"	
	B. By polar plot:	
	NAVAL GUNFIRE CALL FOR FIRE	

5. (Method of engagement) (Use as needed): "Danger close" "Reduced charge" "Ammunition "Fuze "Number of guns "Number of salvos "Special instructions "Fire for effect" "Spotter adjust" "Ship adjust" "At my command" "Cannot observe"
--

			<u> </u>	22
NAVAL GUNFIRE MESSAGE	TO OBSERVER Gun target line (mils grid)	Ready time (sec)	Notes:	22.29.1
				22

22									
7	NS	16"/50	38100	24000	AP, HE, ICM	5	2	PD, CVT	1000 (2000 ICM)
! !	VEAPO ES	5"/54	21500	12000	AP, HE, ILLUM, WP	30	20	PD, MT, CVT	750
22.30.1	GUNFIRE WE,	2"/38	15500	7900	AP, HE, ILLUM, WP	20	15	PD, MT	750
2	NAVAL GUNFIRE WEAPONS CAPABILITIES	WEAPON	Max range (m) full charge	Max range (m) reduced charge	Ammo	Max rate of fire (rpm)	Sustained rate of fire (rpm)	Fuzes	Danger close distances (m)
22	<u> </u>								

NAVAL GUNFIRE LLUMINATION FACTORS	· · ·					
LLUMINATION FACTOR WEAPON 5"/38 5"/54 Height of 500 500 500 burst (m) 45 45 (sec) (m/sec) 10 10 10 10 10 10 10 1	S	16"/50 N/A	N/A	N/A		
NAVAL GUNF ILLUMINATION FA WEAPON 5"/38 Height of 500 burst (m) Rate of fall 10 (m/scc) Notes:	IRE ACTOR	5"/54	45	10		
NAVA ILLUMINA WEAPON Height of burst (m) Bum time (sec) (m/sec) Notes:	L GUNF TION FA	5"/38	45	10		
• • • • • • • • • • • • • • • • • • •	NAVA ILLUMINA ⁻	WEAPON Height of burst (m)	Bum time (sec)	Rate of fall (m/sec)	Notes:	

LIGHT DATA ITEM FIRST DAY BMNT BMCT Sun Rise Sun Set EECT	LAST DAY
EM ise et	LAST DAY
INT ICT n Rise n Set CT	
n Rise n Set	
ın Rise ın Set	
Sun Set EECT	
EECT	
_	
EENT	
Moon Rise	
% Illum	
Moon Set	
Notes:	

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																				_		
S	S.	PAGE	23.1.1	(23.2.1		23.3.1		23.4.1		23.5.1		23.6.1		23.7.1		23.8.1		23.9.1	23.10.1	23.11.1	
CONVERSION TABLES	TABLE OF CONTENTS	ITEM	US to metric conversion factors	(length)	Metric to US conversion factors	(length)	US to metric conversion factors	(area)	Metric to US conversion factors	(area)	US to metric conversion factors	(volume)	Metric to US conversion factors	(volume)	US to metric conversion factors	(capacity)	Metric to US conversion factors	(capacity)	Meters and feet conversion	Kilometer and mile conversions	Statute mile conversions	
																						Ì

23								 		
7	S	PAGE	23.12.1	23.13.1	23.15.1					
3 23.0.2	CONVERSION TABLES TABLE OF CONTENTS	ITEM	Nautical mile conversions	Yard to meter conversions Meter to yard conversions	Nautical mile to meter conversions					
23							 			

				· ·			······	· ·				23
ERSION STH)	TO GET	Millimeters	Millimeters	Millimeters	Centimeters	Centimeters	Centimeters	Meters	Meters	Meters	Meters	2
US TO METRIC CONVERSION FACTORS (LENGTH)	TIMES	25.40	304.80	914.40	2.54	30.48	91.44	0.025	0.305	0.914	1609.34	23.1.1
US TO ME FACT	MULTIPLY	Inches	Feet	Yards	Inches	Feet	Yards	Inches	Feet	Yards	Miles	
			<u></u>			L					_	23

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Z	ET	eters	eters	eters	r liter	hour	
RSIC H)	TO G	Kilome	ilome	Glome	m per	m per	
IVE GTI	_	4	<u> </u>	<u> </u>	ㅈ	ㅗ	
TRIC CON	TIMES	0.00030	0.00091	1.609	0.425	1.609	
US TO ME FACT	MULTIPLY	Feet	Yards	Miles	MPG	МРН	Notes:
	I	<u></u>			<u> </u>	<u> </u>	
	US TO METRIC CONVERSION FACTORS (LENGTH)	US TO METRIC CONVERSION FACTORS (LENGTH) MULTIPLY TIMES TO GET	TORS (LENGTH TIMES 0.00030 K	TORS (LENGT TIMES 0.00030	1ETRIC CONVE CTORS (LENGT TIMES 0.00030 0.00091	TIMES (LENG) 1.609 0.0425	1.609

			 							1 1		23
ERSION TH)	TO GET	Inches	Feet	Yards	Inches	Feet	Yards	Inches	Feet	Yards	Miles	
METRIC TO US CONVERSION FACTORS (LENGTH)	TIMES	0.03937	0.00328	0.00109	0.3937	0.0328	0.0109	39.37	3.281	1.094	0.00062	23.2.1
METRIC T FACT	MULTIPLY	Millimeters	Millimeters	Millimeters	Centimeters	Centimeters	Centimeters	Meters	Meters	Meters	Meters	
								•	<u> </u>			23

23											
,	ERSION TH)	TO GET	Feet	Yards	Miles	MPG	МРН				
23.2.2	METRIC TO US CONVERSION FACTORS (LENGTH)	TIMES	3280.84	1093.61	0.621	2.354	0.621	i i			
	METRIC T FACT	MULTIPLY	Kilometers	Kilometers	Kilometers	Km per liter	Km per hour	Notes:			
23		•					<u> </u>				

		23	2	23.3.1	8	23,
					Notes:	
2			Sq. kilometers	2.59	Sq. miles	
χ Σ			Sq. meters	0.836	Sq. yards	
(Sq. meters	0.093	Sq. feet	
			Sq. meters	0.00065	Sq. inches	
			Sq. centimeters	6.452	Sq. inches	
8		 	Sq. millimeters	645.16	Sq. inches	
6			TO GET	TIMES	MULTIPLY	
ഗ്			REA)	FACTORS (AREA)	FAC	-
_			IS TO METRIC CONVERSION	TRIC CO	EN OT 211	
\sim L	23					
4	(

23 Sq. inches Sq. inches Sq. inches Sq. yards Sq. miles METRIC TO US CONVERSION TO GET Sq. feet FACTORS (AREA) 0.00155 1550.00 TIMES 10.764 0.155 1.196 0.386 23.4.1 q. millimeters q. centimeters sq. kilometers MULTIPLY Sq. meters Sq. meters Sq. meters otes:

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			· — —				γ	23
VERSION UME)	TO GET	Cubic centimeters	Cubic meters	Cubic meters	Liters	Liters		
O METRIC CONVERS FACTORS (VOLUME)	TIMES	16.39	0.028	0.765	0.016	28.32		23.5.1
US TO METRIC CONVERSION FACTORS (VOLUME)	MULTIPLY	Cubic inches	Cubic feet	Cubic yards	Cubic inches	Cubic feet	Notes:	
			<u> </u>					23

23								
7	VERSION UME)	TOGET	Cubic inches	Cubic feet	Cubic yards	Cubic inches	Cubic feet	
23.6.1	RIC TO US CONVERS FACTORS (VOLUME)	TIMES	0.061	35.31	1.308	61.02	0.035	
	METRIC TO US CONVERSION FACTORS (VOLUME)	MULTIPLY	Cubic centimeters	Cubic meters	Cubic meters	Liters	Liters	Notes:
23	L					l		<u>. </u>

ACCOUNT BONDER BESSERA BOND

US TO METRIC CONVERSION FACTORS (CAPACITY) MULTIPLY TIMES TO GET Fluid drams 3.697 Milliliters Fluid ounces 29.57 Milliliters Fluid ounces 0.030 Liters Pounds 0.454 Kilograms Pints 0.473 Liters Quarts 0.946 Liters Gallons 3.785 Liters Notes:											
US TO METRIC CON FACTORS (CAPA MULTIPLY TIMES Fluid drams 3.697 Fluid ounces 29.57 Fluid ounces 0.030 Pounds 0.454 Pints 0.454 Quarts 0.946 Gallons 3.785 Notes:	VERSION (CITY)	TO GET	Milliliters	Milliliters	Liters	Kilograms	Liters	Liters	Liters		
US TO MET FACTOF MULTIPLY Fluid drams Fluid ounces Fluid ounces Pounds Pints Quarts Gallons Notes:	RIC CON	TIMES	3.697	29.57	0.030	0.454	0.473	0.946	3.785		
	US TO MET FACTOF	MULTIPLY	Fluid drams	Fluid ounces	Fluid ounces	Pounds	Pints	Quarts	Gallons	Notes:	

23												
7	IVERSION ACITY)	TOGET	Fluid drams	Fluid ounces	Fluid ounces	Pounds	Pints	Quarts	Gallons			
23.8.1	FRIC TO US CONVERSI FACTORS (CAPACITY)	TIMES	0.271	0.034	33.81	2.205	2.113	1.057	0.264			
	METRIC TO US CONVERSION FACTORS (CAPACITY)	MULTIPLY	Milliliters	Milliliters	Liters	Kilograms	Liters	Liters	Liters	Notes:		
23	<u> </u>	1	·		L	L				<u> </u>		

	NETERS A	METERS AND FEET CONVERSION	VERSION
	METERS	FEET-METER	FEET
	0.305	1	3.281
	0.610	2	6.562
L	0.914	က	9.842
	1.219	4	13.123
L	1.524	5	16.404
<u> </u>	1.829	9	19.685
L	2.134	7	22.966
L	2.438	8	26.247
L	2.743	6	29.528
	3.048	10	32.809
	960'9	20	65.617
	9.144	30	98.426
	12.192	40	131.234
	15.240	50	164.043
20		23.9.1	66

23																
	NVERSION	FEET	196.852	229.660	262.459	295.278	328.087	656.1	984.3	1312.3	1640.4	3280.9	6561.7	9842.6	13123.5	16404.3
23.9.2	METERS AND FEET CONVERSION	FEET-METER	09	70	80	06	100	200	300	400	200	1000	2000	3000	4000	5000
~	METERS A	METERS	18.990	21.340	24.380	27.430	30.480	096.09	91.440	121.920	152.400	304.800	609.600	914,400	1219.200	1524.000
23																

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							· · · · · ·							23
MILE S	NAUTICAL MILES	0.54	1.08	1.62	2.16	2.70	3.24	3.78	4.32	4.86	5.40	10.79	16.19	
KILOMETER TO MILE CONVERSIONS	KILOMETERS	-	2	3	4	5	9	7	8	6	10	20	30	23.10.1
KILON	STANDARD MILES	0.62	1.24	1.86	2.49	3.11	3.73	4.35	4.97	5.59	6.21	12.43	18.64	
	I	<u> </u>							<u> </u>					23,

23														
2	MILE IS	NAUTICAL MILES	21.58	26.98	32.38	37.77	43.17	48.56	53.96	107.92	161.88	215.84	269.80	323.76
23.10.2	23.10.2 KILOMETER TO MILE CONVERSIONS	KILOMETERS	40	50	09	70	80	90	100	200	300	400	200	600
	כ עורנ	STANDARD MILES	24.86	31.07	37.28	43.50	49.71	55.93	62.14	124.28	186.42	248.56	310.70	372.84
23														

23.11.1	STATUTE MIL	STATUTE MILES	-	2	ဗ	4	5	9	7	8	6	10	20	30	
	ST CO	KILOMETERS	1.61	3.22	4.83	6.44	8.05	9.66	11.27	12.88	14.49	16.09	32.19	48.28	
23						1				·]
	····														
			با					$\overline{}$		· · · · · · · · · · · · · · · · · · ·	_				 23
		AILE S	1-7	MILES	377.72	431.68	485.64	539.6					•	. ,	
		KILOMETER TO MILE	RD KILOMETERS		700	800	006	1000							23.10.3
		KILO	1 ==	MILES	434.98	497.12	559.26	621.40	Notes:					<u>.</u>	

26.05

17.37

6.08

5.21

6.95

7.82

8.68

23

NAUTICAL MILES

STATUTE MILE CONVERSIONS

0.84

1.74

3.47

2.61

4.34

TATUTE MILE STATUTE NAUTICAL MILES MILES 40 34.74 50 43.42 60 52.10 70 60.79 80 69.47 90 78.16 100 86.84 200 173.70 300 260.50 400 347.40 500 432.20 600 521.00 23.11.2			1		<u> </u>										23
STATUTE MIL CONVERSION KILOMETERS STATUTE MILES 64.38 40 80.47 50 96.56 70 112.65 80 1128.75 90 144.85 100 160.94 200 321.88 300 482.82 400 640.76 500 804.70 600	ы S	NAUTICAL MILES	34.74	43.42	52.10	60.79	69.47	78.16	86.84	173.70	260.50	347.40	432.20	521.00	
CC KILOMETERS 64.38 80.47 6 96.56 112.65 114.85 160.94 321.88 482.82 640.76	AIOIE IVIII NVERSION	STATUTE MILES	40	20	09	70	80	90	100	200	300	400	200	009	23.11.2
	ST	KILOMETERS	64.38	80.47	9	96.56	112.65	128.75	144.85	160.94	321.88	482.82	640.76	804.70	

23										
7	LE NS	NAUTICAL MILES	6.709	694.7	781.6	868.4				
23.11.3	STATUTE MILE CONVERSIONS	STATUTE MILES	200	800	006	1000				
_	SI	KILOMETERS	1126.60	1287.50	1448.50	1609.40	Notes:			
23			·			L				

														23
я S	STATUTE MILES	1.15	2.30	3.46	4.61	5.76	6.91	8.06	9.21	10.36	11.52	23.02	34.55	
NAUTICAL MILE CONVERSIONS	NAUTICAL MILES	-	2	3	4	5	9	7	8	6	10	20	30	23.12.1
NA	KILOMETERS	1.85	3.71	5.56	7.46	9.27	11.12	12.97	14.83	16.68	18.53	37.06	55.60	
l	1 =	<u> </u>							L	L	L			23,

23														
2	LE NS	NAUTICAL MILES	46.06	57.58	69.10	80.61	92.13	103.64	115.20	230.30	345.50	460.50	575.80	691.00
23.12.2	NAUTICAL MILE CONVERSIONS	STATUTE MILES	40	50	09	70	80	90	100	200	300	400	500	009
	žö	KILOMETERS	74.13	92.66	111.19	129.72	148.26	166.79	185.32	370.64	555.96	741.28	926.60	1111.92
33							<u> </u>		·			<u>'</u>	<u></u> .	

NAUTICAL MILE								223
NAUTICAL MIL CONVERSION T1297.24 700 1482.56 800 1667.38 900 1853.20 1000 Notes:	ы S	STATUTE MILES	806.10	921.30	1036.40	1151.60		
NA CC CC 1297.24 1482.56 1667.38 1853.20 Notes:	UTICAL MIL	NAUTICAL MILES	700	800	006	1000		23.12.3
	NA	KILOMETERS	1297.24	1482.56	1667.38	1853.20	Notes:	

23																
	S CONVERSIONS	METERS	91	183	274	366	457	549	640	732	823	914	1006	1097	1189	1280
3 23.13.1	YARD TO METER CONVERSIONS	YARDS	100	200	300	400	200	009	700	800	006	1000	1100	1200	1300	1400
23	-				-											

YARDS METERS YARDS METERS 1500 1372 1600 1463 1700 1554 1800 1646 1900 1737 2000 1828 2000 2742 4000 3656 5000 4570 6000 5484 7000 6398 8000 7312	S 2															 23
ARDS 500 600 700 800 600 600 600 600 600 600 600 600 6	NVERSION	METERS	1372	1463	1554	1646	1737	1828	2742	3656	4570	5484	6398	7312	8226	
	TO METER CC	YARDS	1500	1600	1700	1800	1900	2000	3000	4000	5000	0009	7000	8000	0006	 23.13.2

23																
	METER TO YARD CONVERSIONS	YARDS	109	219	328	437	547	959	992	875	984	1094	1203	1312	1422	1531
23.14.1	METER TO YAR	METERS	100	200	300	400	200	009	002	008	006	1000	1100	1200	1300	1400
23																

METER TO YARD CONVERSIONS METERS YARDS 1500 1640 1600 1750 1600 1750 1800 1969 1900 2078 2000 2188 4000 4376 5000 5470 6000 6564 7000 7658 8000 8752 9000 9846	S															76
METER TO YARD METERS 1500 1600 1700 2000 2000 6000 6000 7000 8000	CONVERSION	YARDS	1640	1750	1860	1969	2078	2188	3282	4376	5470	6564	7658	8752	9846	4.2
	METER TO YARD	METERS	1500	1600	1700	1800	1900	2000	3000	4000	2000	0009	7000	8000	0006	23.1

23														_	
	NAUTICAL MILE TO METER CONVERSIONS	METERS	185	370	463	556	741	926	1111	1296	1389	1482	1667	1852	2315
23.15.1	NAUTICAL MI CONVE	NAUTICAL MILES	0.1	0.2	1/4	0.3	0.4	1/2	9.0	0.7	3/4	0.8	6.0	-	1 1/4
23	_														

23			- 1 -	 7					 <u> </u>	I	-	
	NOTES											
23												

		_		_					_					23
E TO METER SIONS	METERS	2778	3241	3704	4167	4630	5093	5556	6019	6482	6945	7408	9260	.2
NAUTICAL MILE TO METER CONVERSIONS	NAUTICAL MILES	11/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	ហ	23.15.2
														123

Air a Air a Con	SNC	PAGE	24.1.1	-	24.2.1		24.3.1		24.4.1		24.5.1	24.6.1	24.7.1		24.8.1		24.9.1		24.10.1		24
	AIR ASSAULT OPERATIONS TABLE OF CONTENTS	ITEM	Aircraft troop commander	briefing	Air assault safety briefing	checklist	Air assault operation reverse	planning sequence	Ground tactical plan	considerations	Landing plan considerations	Landing zone selection criteria	Landing plan fire support	considerations	Air assault PZ/LZ planning	considerations	Minimum landing point sizes	(circle diameter in meters)	Air assault extraction loading	plan requirements	24 24.0.1

24												
7	SNO	PAGE	24.11.1	24.12.1	24.13.1	24.14.1	24.15.1	24 16 1		24.17.1		
24.0.2	AIR ASSAULT OPERATIONS	I ABLE OF CONTENT	Pickup zone control officer	(P2CO) duties Platoon leader duties in	platoon air assault operations Platoon sergeant duties in	platoon air assault operations Chalk leader duties in platoon	air assault operations PZ control party in platoon air	assault operations Air assault force commander's	checklist	Night marking of PZs and LZs		
24												

24.1.1
4. Preflight safety inspection of troops
3. Use of safety belts
2. Bump plan (for individuals/loads)
1. Loading procedures
COMMANDER BRIEFING

24		1 1		1 1	1	
24.1.2	AIRCRAFT TROOP COMMANDER BRIEFING	5. In-flight procedures	6. Downed aircraft procedures	7. Offloading procedures	8. Movement from the LZ	9. 10. 11.
24						

	>						
AIR ASSAULT SAFETY BRIEFING CHECKLIST	ACTION	Wear ID tags and earplugs at all times when near or in acft	Wear helmets with fastened chin straps at all times	Approach UH-60 acft from the front of acft, forward of rear cargo doors	DO NOT go near tail of acft	Approach/depart acft in a crouch for extra clearance of main rotor blade	Move to/from acft on DOWN slope side to avoid main rotor
	ITEM	-	2	က	4	2	9

24												
7		>										
24.2.2	AIR ASSAULT SAFETY BRIEFING CHECKLIST	ACTION	Roll sleeves down whenever working with acft	Weapons in acft	Bayonets off	Chambers empty	Safeties on	Bolts closed	Magazines in	Muzzles DOWN	Pistol grips forward	
_		ITEM	7	8	8A	8B	8C	8D	8E	8F	8G	
24									<u> </u>	· · · · · ·	·	1

וווואן אבמו		d landing	buckled until Is you to exit	s upon getting	nas down	ennas all the			NO
riace lieau agaillot seat	Sit upright	In event of forced landing	Leave seat belts buckled until crew chief signals you to exit acft	Fasten seat belts upon getting in acft	Tie long antennas down		Bend short antennas all the way down	Radios near acft Bend short ante way down	ACTION Radios near acft Bend short antenway down
1 Z D	12A	12	F	10	9B	9A	6	ITEM	

24									
7		\			,				
24.2.4	AIR ASSAULT SAFETY BRIEFING CHECKLIST	ACTION	Place hand flat on thigh	Stay in acft until MAIN ROTOR COMPLETELY STOPS, unless there is a fire	Give written manifest of every passenger on acft to a person who is not flying on that acft and/or mission. Include	Unit	Rank	Full name	Social security number
_		ITEM	12C	12D	13	13A	13B	13C	13D
24									

/ REVI	AIR ASSAULT OPERATION REVERSE PLANNING SEQUENCE	SE
ITEM	ACTION	>
-	Ground tactical plan	
2	Landing plan	
3	Air movement plan	
4	Loading plan	
5	Staging plan	
10.14		

Notes:
• Make careful analysis of METT-T.

Develop ground tactical plan first.

 Ground tactical plan forms basis from which other plans are derived.

Do not develop plans independently.

24.3.1

24

Fire support to include graphic Missions of all force elements Location and size of reserves include resupply, evacuation, and plans to sustain the force and methods of employment Task organization to include Zones of attack, sectors, or Combat service support to graphic control measures CONSIDERATION areas of operations with command relationships control measures ITEM 2 က ဖ 4 S

24

GROUND TACTICAL PLAN

24.4.1

24

CONSIDERATIONS

	>	-						24
LANDING PLAN CONSIDERATIONS	CONSIDERATION	Supports ground tactical plan	Availability, location, and size of potential LZs are overriding factors	Force is most vulnerable during landing	Elements must land with tactical integrity	Inform all troops if briefed landing direction changes to reduce disorientation	Force must land prepared to fight in any direction	24.5.1
	ITEM	-	2	က	4	J.	9	

24			,					
7		>						
24.5.2	LANDING PLAN CONSIDERATIONS	CONSIDERATION	Plan must offer flexibility for options in developing scheme of maneuver	Plan supporting fires in and around each LZ	Plan to bring artillery/mortars into LZ(s) early to provide fire support for next lifts and on objective	Plan must provide for resupply and medical evacuation by air		
		ITEM	^	8	თ	10	11	12
24								

24													
2													
24.6.2	LANDING ZONE SELECTION CRITERIA	CRITERIA	Departure routes	Weather	Surface conditions	Ground slope							
		ITEM	7	12	13	14	15	16	17	18	19	20	
24											· · · · · · · · · · · · · · · · · · ·		

SUP 1 PP		_
	LANDING PLAN FIRE SUPPORT CONSIDERATIONS	
	CONSIDERATION	
<u>></u> _	Plan for short, intense, high volume preparatory fires	
2 fir	Plan for fires to end just before first assault element's landing	
Ω Θ	Deception	
4	Loss of surprise	
5 Fi	Fire support availability	
6 Si	Significant targets	
0 2	Obstacles to landing/maneuver	
8 St	Scheduling fires	
9 Pc	Positive control measures	
	24.7.1	24

24									
N	m	>							
24.8.1	AIR ASSAULT PZ/LZ PLANNING CONSIDERATIONS	CONSIDERATION	PZs	Require minimum movement by ground troops	Provide access to vehicles moving support assets	Be masked from enemy observation	Be outside the range of enemy artillery (if possible)	LZs	Locate on, close by, or some distance away from the objective (base on METT-T)
	1d	ITEM	-	1A	1B	10	10	2	2A
24									

<u> </u>		<u> </u>						24
AIR ASSAULT PZ/LZ PLANNING CONSIDERATIONS	CONSIDERATION	Size determines how much combat power can be landed at one time	Enemy ADA and its capability to react to nearby landing	Deny enemy observation and acquisition of ground/air units	Land on enemy side of obstacles when attacking	Avoid exposing aircraft to enemy fire on approach or departure	Reduced visibility may limit or preclude use	24.8.2
PL	ITEM	2B	2C	2D	2E	2F	2G	
								24

24									
7	SIZES TERS)	SIZE	25	35	35	50	50	80	ratio of arture anding tal oroach
24.9.1	MINIMUM LANDING POINT SIZES (CIRCLE DIAMETER IN METERS)	HELICOPTER TYPE	OH-58	UH-1	AH-1	09-HN	AH-64	CH-47	Note: Use an obstacle clearance ratio of 10 to 1 on the approach and departure ends of the PZ/LZ. (Example: A landing point requires 100 feet of horizontal clearance if a helicopter must approach or depart directly over a 10-foot tall tree.)
24									

RACTION JIREMENTS	VT V									ion	
AIR ASSAULT EXTRACTION LOADING PLAN REQUIREMENTS	REQUIREMENT	PZ locations	Primary	Alternate	PZ security	PZ control party	Organization	Location	Fire support	Sequence of extraction	Main body
A	ITEM	1	1A	18	2	က	3A	3B	4	5	4 4

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24.10.2	AIR ASSAULT EXTRACTION LOADING PLAN REQUIREMENTS	REQUIREMENT	PZ control party	Security force	Movement to the PZ	Route	Order of movement	Loading priorities				Note: PZ time is the critical factor
	V V V	ITEM	5B	5C	9	6 A	89	2	8	6	10	Note:
24												

PICKUP ZONE CONTROL OFFICER (PZCO) DUTIES	DUTY	Form control group	Establish communications	Unit movement/loading net	Combat aviation net	Plan fire support	Initiate fire support	Plan security	Initiate security	Clear PZ of obstacles	Mark PZ
	ITEM	-	2	2A	2B	3	4	5	9	7	80

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24.12.1	PLT LDR DUTIES IN PLT AIR ASSAULT OPERATIONS	DUTY	Overall responsibility for the air assault operation	Act as PZCO (if ordered)	Plan the operation	Brief subordinate leaders	Issue OPORD	Conduct rehearsals	Ride in Air Msn Cdr's (AMC) aircraft to ensure better comd, control, and commo	::
	Ь	ITEM	1	2	3	4	2	9	2	Notes:
24										

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PSG DUTIES IN PLT AIR ASSAULT OPERATIONS	DUTY	Set up PZ	Supervise marking	Supervise clearing obstacles	Act as PZCNCOIC (if ordered)	Brief all chalk leaders	Supervise all activity on PZ	PZ security	Movement of troops and equipment	Placement of chalks and slingloads	24.13.1
l	ITEM	1	14	18	2	က	4	44	4B	4C	

24							
7		>					
24.13.2	PSG DUTIES IN PLT AIR ASSAULT OPERATIONS	DUTY	Devise bump plan	Disseminate bump plan	Ensure PZ is cleared	Ride in last aircraft for control purposes	••
		ITEM	5	9	7	ω	Notes:
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CHALK LDR DUTIES IN PLT AIR ASSAULT OPERATIONS	DUTY	Brief squad/attachments on their tasks inside aircraft	Brief squad/attachments on their positions inside aircraft	Ensure lights/panels for his aircraft are properly emplaced	Assign squad areas of security	Ensure that each soldier goes to his proper area	Supervise loading of squad/ attachments into aircraft	Ensure squad/attachments buckle lap belts	24.14.1
СН	ITEM	-	7	3	4	52	9	_	
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24.14.2	CHALK LDR DUTIES IN PLT AIR ASSAULT OPERATIONS	DUTY	Upon landing, ensure squad/ attachments	Exit aircraft quickly	Rush to a safe distance (10 to 15 meters) from aircraft	Assume the prone position	Prepare to return enemy fire		
	НЭ	ITEM	ဆ	8A	8B	8C	8D	Notes:	
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PZ CONTROL PARTY IN PLT AIR ASSAULT OPERATIONS	DUTY	PZCO is a rifle platoon leader	PZCNCOIC is a PSG	RATELO (with 3 radios)	1 radio monitors combat aviation net	1 radio is on platoon command net	1 radio is on company command net	Chalk-linkup guides (1 per chalk/squad) from the same chalk/squad that they are assigned to	1 L
PLT	ITEM	-	2	က	3A	3B	30	4	

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24	SN	>									
24.15.2	PZ CONTROL PARTY IN PLT AIR ASSAULT OPERATIONS	DUTY	Assist chalk in linkup in unit assembly area	Assist chalk in movement to chalk assembly area	Lead aircraft signalman	Visually signals lead aircraft	From chalk on lead aircraft	Slingload teams (3 personnel)	Signalman	Static-probe man	Hookup man
	PL	ITEM	4 A	4B	5	5A	5B	9	6A	6B	ည္မ
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AIR ASSAULT FORCE COMMANDERS' CHECKLIST ACTION Action upon receipt of orders Analyze mission(s) Determine specified and implied task(s) Determine objective(s) Develop time schedule Cobtain aircraft ACL from AMC and/or ALO Issue warning order Ground tactical plan		-								>	
	Choose assault objectives	Ground tactical plan	Issue warning order	Obtain aircraft ACL from AMC and/or ALO	Develop time schedule	Determine objective(s)	Determine specified and implied task(s)	Analyze mission(s)	Action upon receipt of orders	ACTION	AIR ASSAULT FORCE DAMANDERS' CHECKLIST
C 15 15 15 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2A	2	1F	1E	1D	1C	18	1A	-	ITEM	Ö

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24.16.2	AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Designate usable LZ(s)	Establish D-day and H-hour (time of assault)	Identify special tasks required to accomplish mission	Organic troops	Army aviation resources	USAF support (AMC/ALO)	FARP	Engineers	Signal (include aerial relay)
	O	ITEM	2B	2C	2D	2E	2F	2G	2H	21	2J
24											

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AIR ASSAULT FORCE COMMANDERS' CHECKLIST 2K Medical 2L CAS 2M Field artillery within range 2N Mortar and naval gunfire 2D Preparation fires for LZs (to include lifting/shifting signals) 2P Flight corridors 2Q Air defense suppression 2R Control measures needed 2S Subsequent operations that may be conducted 2S Subsequent operations that may be conducted							-					24
20 20 20 28 28 28 28 29 20 20 20 28 28 28 28 28 28 28 28 28 28 28 28 28	AIR ASSAULT FORCE OMMANDERS' CHECKLIST	ACTION	Medical	CAS	Field artillery within range	Mortar and naval gunfire	Preparation fires for LZs (to include lifting/shifting signals)	Flight corridors	Air defense suppression	Control measures needed	Subsequent operations that may be conducted	24.16.3
	Ö	ITEM	7	21	2M	2 N	20	2P	2Q	2R	25	

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24.16.4	AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Intelligence info/requirements	Enemy locations (including ADA positions)	CO's aerial recon of objective area (if possible)	Aerial recon (SLAR/photos)	Sensor reports	Terrain study	Weather forecast	Latest INTSUM	POW handling procedures
	O	ITEM	က	34	38	30	3D	3E	3F	3G	Ж
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AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Civilian control procedures	Landing	Selection of primary/alternate LZs (capacity)	LZ identification procedures for landing sites (smoke/ panels/flares/lights)	Use of pathfinders	Landing formation(s)	Approach and departure directions	Use of TACAIR	24.16.5
Ü	ITEM	31	4	4A	4B	4C	4D	4E	4F	_
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24.16.6	AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Use of indirect fire weapons	Use of atk helicopters/units	Use of EW	Shifting of fires	Lifting of fires	Suppression of enemy ADA	Flight routes (primary/alternate/return)	RPs/direction and distance to LZs	SP/air control points/CCP/RPs
	Ö	ITEM	4G	4H	4	4	4K	44	5	5A	58
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AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Phase lines (if used)	Estimate time enroute	Maneuver areas for attack helicopters	Laagers (location, mission, security)	Friendly ADA considerations	Enemy ADA intelligence	Air movement table	Units to be lifted	Aviation units that will support	24.16.7
O	ITEM	25	2D	5E	5F	5G	5H	9	6A	6B	
											24

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24.16.8	AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Number and type of lift aircraft allocated to each unit	Lift-off times	Routes	Unit LZs	H-hour (landing time of initial serial)	Alternate commo plan	FM	UHF	VHF
	ŭ	ITEM	29	д 9	9E	6F	6G	7	7A	78	7C

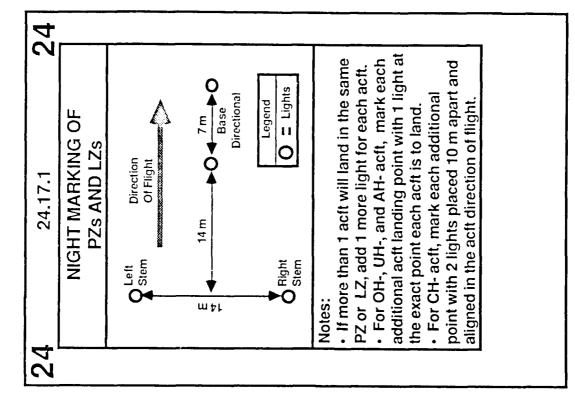
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AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Visual/audio signals	Aerial radio relay	Loading	PZ assignment by unit (primary/alternate)	Bump and/or straggler contingency plan	Holding areas	Routes from assembly areas to holding area to PZ(s)	Atk helicopter use (security and overwatch from PZ to LZ)	24.16.9
Ö	ITEM	70	7E	8	8A	8B	8C	8D	8E	
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24.16.10	AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Support plans for operation	Alternate plans/procedures due to weather (H-hour increment to delay operation)	Downed helicopter plans	Rally points	Escape and evasion plans	Laager sites	Rules of engagement	Deception plans to use	Spare aircraft available
77	S	ITEM	6	V 6	9B	၁6	G 6	3 6	9F	96	H6

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AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Recon (air-ground) to conduct	Straggler control procedures	Reporting (enroute, lift-off, touchdown, intel, contact)	Aircraft control after assault	Health service support and evacuation procedures	Actions that must be completed	Warning orders	LNO(s) (receive/dispatch)	Attachments/detachments	24.16.11
ပ	ITEM	16	6	Ж6	76	W 6	10	10A	10B	10C	
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24.16.12	AIR ASSAULT FORCE COMMANDERS' CHECKLIST	ACTION	Issue commander's concept (time/place)	Briefings (time/place)	Preparation of OPORD	Issue OPORD (time/place)	Logistics requirements	Class V resupply	Feeding plan	Water	MEDEVAC (frequency, call sign, location, procedures)
	ပိ	ITEM	10D	10E	10F	10G	11	11A	11B	11C	11D
4											

AIR ASSAULT FORCE COMMANDERS' CHECKLIST ITEM ACTION 11E Refueling (location of FARP and ammo available) 12 Debriefing 12A Ground units lessons learned 12B Aviation units lessons learned 12C Actions taken for correction Notes:	<u> </u>	>			5	q			24
Not 12 12 12 12 15 15 15 15	AIR ASSAULT FORCE	ACTION	Refueling (location of FARP and ammo available)	Debriefing	Ground units lessons learne	Aviation units lessons learne	Actions taken for correction		24.16.13
	Ö	ITEM	11E	12	12A	12B	12C	Notes	



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ABBREVIATIONS	A	Assembly Area or Avenue of	Approach	Allowable Cargo Load	aircraft	Air Defense Artillery	Air Liaison Officer	Air Mission Controller	ammunition	Area of Operations	Antipersonnel	As soon as possible	assault	Air Support Communication	Center	association	assembly	Antitank	Antitank Guided Missile	attack	available	Absent without leave	В	Base Detonating	25.1.1
		AA		ACL	acft	ADA	ALO	AMC	ammo	AO	AP	ASAP	asit	ASOC		assn	assy	AT	ATGM	atk	aval	AWOL		ВВ	

25	25.1.2	7.2
f	ABBREVIATIONS	
	В	
BFV	Bradley Fighting Vehicle (M2/M3)	
Bio	Biological	
bldg	building	
BMCT	Beginning of Morning Civil Twilight	
BMNT	Beginning of Morning Nautical	
	Twilight	
BOMBREP	Bomb Report	
ВР	Battle Position	
	S	
CA	Course of Action	
camo	camouflage	
CAS	Close Air Support	
cpt	combat	
CBU	Cluster Bomb Unit	
CCP	communications checkpoint	
Cdr	Commander	
C-E	Communications-Electronics	
CFL	Coordinated Fire Line	
civ	civilian	
Chem	Chemical	
8	Commanding Officer	
ပိ	Company	
coax	coaxial machinegun	

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ABBREVIATIONS	3	command Communication(c)	Communications Security	Continuous Operations	continue coordinate(s)	Command Post; Concrete Piercing	Concrete Piercing Mustard Gas Combat Vehicle Crewman	Q	Department of the Army	Direct Air Support Center	demolition(s)	Dual Purpose Improved	Conventional Munitions	Date-Time Group	Ш	Engagement Area	End of Evening Civill Twilight	end of evening Natureal I winging	25.1.3
		ршоэ	COMSEC	CONOPS	cont	CP GO	CPHD		DA	DASC	demo	DPICM	o C	DTG		EA	EECT	eff	
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25.1.4	ABBREVIATIONS	ц	element	emergency Electromagnetic Bulse	enemy	Electronic Warfare	L.	Forward Air Controller	Fuel Air Explosive	Forward Rearming and Refueling	Point	Fire Coordination Line	Fire Direction Center	Folding Fin Aerial Rocket	Frequency Modulation	Fuel Support Coordination Center	Fire Support Coordination Line	frequency	9	Guided Bomb Unit	General	Grid-Magnetic	General Support
			elem	emerg	en	EW	! !	FAC	FAE	FARP		FCL	FDC	FFAR	FM	FSCC	FSCL	freq		GBU	Gen	გ M	gs
25																							

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ABBREVIATIONS	ŋ	Ground Surveillance Radar	I	Smoke	High Drag	High Explosive	High Explosive Plastic	High Explosive Plastic-Tracer	High Explosive Spouling	Height of Burst	hour	Headquarters	-	Improved Conventional Munitions	Identification	Inspector General	Intelligence Information Report	illuminating	individual	information	intelligence	intelligence summary	25.1.5
		GSR		유	유	<u> </u>	HEP	HEP-I	ב ב ב	HOB	Ĕ	Р		ICM	Ω	ত	监	illum	indiv	info	intel	INTSUM	
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25.1.6	ABBREVIATIONS	1	Initial Point	Improved TOW Vehicle	J	Joint Air Attack Team	Juage Advocate General	¥	kilometer(s)	kilometers per hour	Γ	Light Antitank Weapon	Latitude	Load Bearing Equipment	Line of Departure; Low Drag	leader	Laser Guided Bomb	location	logistics	Longitude	Listening Post	Landing Zone	
			<u>a</u> !	2		JAAT	JAG		km	kph		LAW	LAT	LBE	rD	Ιđ	rce	သူ	log	LONG	LP	רז	
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ABBREVIATIONS	M	meter(s)	Magnetic	maintain; maintenance	Medical Evacuation	Mission, Enemy, Terrain, Troops, and Time Available	machinegun	megahertz	mark	millimeter	Model	Mission Oriented Protection	Posture	Mortar Report	movement	miles per gallon	miles per hour	mission	Mechanic Time	Mechanic Time Super Quick	Z	North Atlantic Treaty Organization Nuclear, Biological, Chemical	25.1.7
		ш	MAG	maint	MEDEVAC	ME! -1	mg	mhz	Ę	mm	MOD	MOPP		MORTREP	mov	bdu	mph	msu	MT	MTSQ		NATO	
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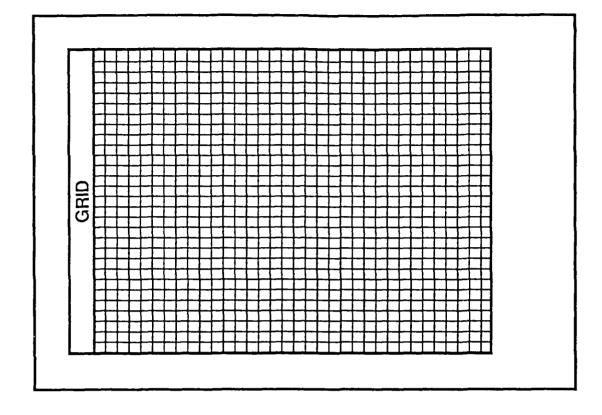
ABBREVIATIONS N Noncommissioned Officer Noncommissioned Officer In Charge No Fire Line Naval Gunfire Night Observation Device(s) nuclear O objective obstacle obstacle observation Operation
ABBREVIATI Noncommission Noncommission Noncommission No Fire Line Naval Gunfire Night Observatio O O objective obstacle obstacle observation Operation Operation Operation Operation Operation Objective objective objective
NCO NCO NCOIC NFL NGF NOD(s) nuc obs obs OP

ABBREVIATIONS P Provost Marshall Preventive Maintenance Check and Services Petroleum, Oils, and Lubricants Personnel Reporting Code Platoon Sergeant position(s) points Prisoner(s) of War Pickup Zone Pickup Zone Pickup Zone Pickup Zone Pickup Zone Control Officer Pickup Zone Noncommissionec Officer in Charge Radiation Radiation Rocket Assisted Projectile Radio-Telephone Operator reconnaissance reference reference reference Radio Frequency Release Point; Rally Point				Checks		cants	<u> </u>	<u>-</u> -					er	sioned				_							
	ABBREVIATIONS	а	Provost Marshall	Preventive Maintenance Checks	and Services	Petroleum, Oils, and Lubri	Personnel Reporting Cod	Platoon Sergeant	position(s)	points	Prisoner(s) of War	Pickup Zone	Pickup Zone Control Officer	Pickup Zone Noncommissioned	Officer in Charge	В	rads per hour	radiation	Rocket Assisted Projectile	Radio-Telephone Operator	reconnaissance	reference	representatives	Radio Frequency	Release Point; Rally Point

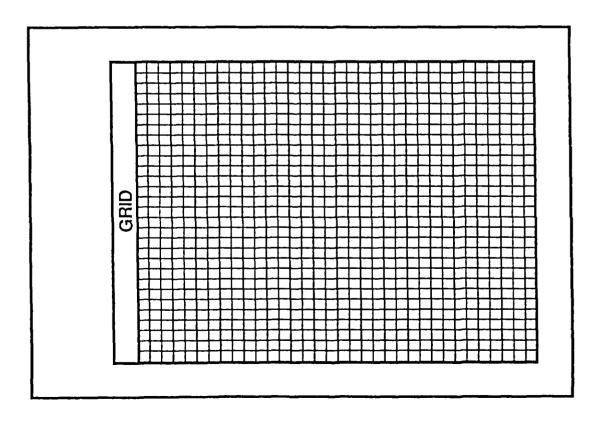
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25.1.10	ABBREVIATIONS	В	rounds per minute	Reconnaissance and Security	Receiver-Transmitter	S	Supporting Arms Coordination	Center	Squad Automatic Weapon	security	second	Sergeant	Shell Report	situation	Squad Leader	Side-Looking Airborne Radar	Standard Operating Procedure	support	Start Point	sdnad	Surveillance, Target Acquisition,	and Night Observation	supplementary; supplemental	supervise	sustain
25			mdı	R&S	R-T		SACC		SAW	scty	sec	Sgt	SHELREP	Sit	SL	SLAR	SOP	sbţ	SP	pbs	STANO		ldns	supv	sust

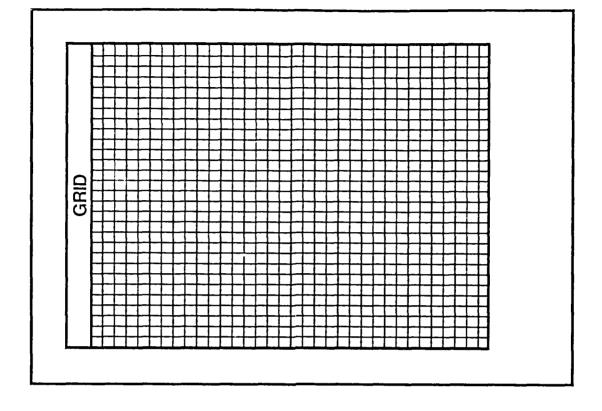
S SUU Suspended Underwing Unit service sys system TACAIR Tactical Air Control Center tactical air TACAIR Time Delay target TIme on Target TTI Time on Target TTI Time on Target TTI Time to Target Beference Point Tyow Wire-guided TRP Target Reference Point UH Uniform Code of Military Justice UH UH Ultra High Frequency UN United States	25																			_	T	
		Ultra High Frequency United States	Uniform Code of Military Justice Utility Helicopter	U	Target Reference Point	Tube-launched, Optically-tracked, Wire-guided	Television	Time to Target	Time on Target	team	Timed	target	Time Delay	Tactical Air Control Party	tactical air	Tactical Air Control Center	1	system	service	2		ABBREVIATIONS
25		UHF US	UCMJ UH		TRP	MO1	2 1	E	T0T	Ę	ìF	tot	TD	TACP	TACAIR	TACC		sys	SVC			

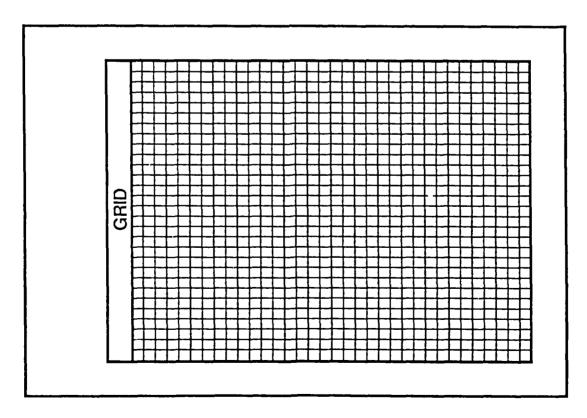
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25.1.12	ABBREVIATIONS	D	United States Air Force	United States Marine Corps	United States Military	United States Navy	Universal Transverse Mercator (grid)	V-W-X	Very High Frequency	Variable Time	with	without	White Phosphorous	weapon(s)	Executive Officer						
			USAF	USMC	US Mil	NSN	UTM		VHF	ΙΛ	/w	w/o	WP	(s)udw	O.						
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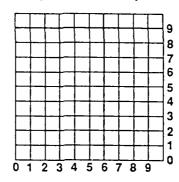




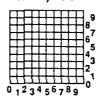


COMBAT LEADERS' GUIDE

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